

Appendix: Commercial Unavailability

NOTE: Each annual report will be an update of the original 2012 determinations. Refer to 2012 ELP Compliance Status Report submitted on 7/31/2012 for previously submitted Relevant Documentation.

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Ball Valve	BAC	No	2012: Company stated they would not provide a warranty to the specifications of the Consent Decree. No response in 2013.	No	2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed according to TA-Luft and results reported in leak rate. No response in 2013.	See: BAC Information Request
Ball Valve	Cooper	No	2012: No warranty provided. No response in 2013.	No	2012: No test data provided for ball valves. No response in 2013.	See: Cooper Information Request
Ball Valve	Hoke (Tubing Valves)	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Hoke Information Request
Ball Valve	KF Contromatics (WATTS)	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	No	2012 and 2013: Company stated they would not provide low emission valves to the specifications of the Consent Decree.	See: KF Contromatics (WATTS) Response
Ball Valve	Kitz	No	2013: Warranty was supplied, however the test data for a 4" 300# Gate Valve did not reasonably support the warranty.	No	2013: No test data provided for ball valves.	See: Kitz Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Ball Valve	KTM	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	No	<p>2012: Company provided data that did not meet specifications of the Consent Decree. EB series was tested to ISO 15848-1, Annex A (leak rate). For the KTM Omni Series, internal testing did not follow Good Engineering Practices (GEP). For single packing gland valves, a packing adjustment took place after every leak of 1 ppm occurred. KTM secondary packing gland utilizing PTFE packing material may meet testing specifications of the Consent Decree. Graphite packing testing did not meet the specifications of the Consent Decree. Valves in flammable service require graphite/PTFE combination, KTM did not test this packing combination.</p> <p>2013: No additional data provided.</p>	See: KTM Response
Ball Valve	Metso/ Jamesbury	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	No	<p>2012: Company did not provide data to meet the specifications of the Consent Decree. Company stated that they only had valve testing data that follows ISO 15848 specifications and results are reported in leak rate.</p> <p>2013: No additional data provided.</p>	See: Metso/ Jamesbury Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Ball Valve	Orbit	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree	No	<p>Received partial test reports in 2012.</p> <p>2013: Full Test report received for 3" CL600 Orbit Valve with graphite packing. The test did not indicate valve type. Only 3 thermal cycles were completed with the last reading at 411ppm after the 3rd thermal cycle.</p> <p>Also provided test report for 3" CL600 Orbit Valve with injectable packing. Max leak ppm was 1000 ppm prior to injection of sealant. The test data does not meet the specifications of the Consent Decree due to the fact that the maximum leak was greater than 500 ppm.</p>	See: Orbit Response
Ball Valve	Swagelok (Tubing Valves)	No	2012: Company stated that all products are covered under a standard lifetime warranty, but the warranty does not meet the specifications of the Consent Decree.	No	<p>2012: Company did not provide data to meet the specifications of the Consent Decree. Test data was not provided, however a summary letter was provided stating the testing was completed per ISO 15848-1 (leak rate) and results are correlated to be below 100 ppm.</p> <p>2013: No test data provided.</p>	See: Swagelok Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Ball Valve	Velan	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Partial	2013: Company did not provide data to meet the specifications of the Consent Decree based on test data for 2" Class 600 Top Entry 316SS Unibody Reduced Port Ball Valve. Max leak was greater than 500 ppm. See "Commercially Available Valves" for Split Body Full Port Low E Valves.	See: Velan Response
Ball Valve	Worcester	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Worcester Information Request
Butterfly Valve	Dezurik	No	2013: Company did not provide a warranty.	N/A	2013: Testing procedure was not in accordance with GEP. There were no thermal cycles completed during the testing.	See: Dezurik Response
Butterfly Valve	Grinnell	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Grinnell Information Request
Butterfly Valve	Metso/Jamesbury	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	No	2012: Company did not provide data to meet the specifications of the Consent Decree. Company stated that they only had valve testing data that follows ISO 15848 specifications and results are reported in leak rate. 2013: No additional data provided.	See: Metso/Jamesbury Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Butterfly Valve	Xomox	NA	2012: Questionnaire stated warranty would be available for selected valves, but did not provide an example.	No	2012: Full test results were not provided, only a summary of results were provided. Testing procedure did not include thermal cycles. Also, any leak above 500 ppm was adjusted and not included in calculating an average leak. 2013: No response.	See: Xomox/Tuflin Information Request
Gate Valve	Bonney Forge	No	2012 and 2013: Company warranty did not meet the specifications of the Consent Decree.	Partial	2013: Test data provided for 3/4" 800# forged steel valve and 4" Class 300 cast steel valve. See "Available Low E Technology" .	See: Bonney Forge Response
Gate Valve	Cooper	No	2012: No warranty provided.	No	2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed per ISO 15848-1 (leak rate). 2013: No response.	See: Cooper Information Request
Gate Valve	Douglas Chero	No	2012 and 2013: Company indicated that a warranty could be provided, however, they did not provide a warranty.	No	2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed per ISO 15848-1 (leak rate). 2013: No additional test data	See: Douglas Chero Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Gate Valve	Kitz	No	2013: Warranty was supplied, however the vendor supplied test data that did not reasonably support the warranty.	No	2013: Test data was received for a 4" 300# SCLS Gate Valve. The test data did not meet the specifications of the Consent Decree due to the fact that the maximum leak concentration was greater than 500 ppm.	See: Kitz Response
Gate Valve	Ladish	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Ladish Information Request
Gate Valve	Larsen and Toubro LLC	N/A	2012 and 2013: Company did not indicate that a warranty could be provided.	Partial	2012: Company provided data that met specifications of the Consent Decree. Test data provided was for 4" gate valve Class 300. See "Available Low E Technology" . 2013: No additional test data provided.	See: Larsen and Toubro LLC Response
Gate Valve	Neway	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Neway Information Request
Gate Valve	Newco	No	2012 and 2013: Company warranty did not meet the specifications of the Consent Decree.	No	2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed per ISO 15848-1 (leak rate). 2013: No additional test data provided.	See: Newco Response
Gate Valve	SWI	N/A	2013: Company did not indicate that a warranty could be provided.	Partial	2013: Company provided data that met specifications of the Consent Decree. Test data provided was for 1" Forged Steel Gate Valve #800. See "Available Low E Technology" .	See: SWI Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Gate Valve	Velan	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Partial	<p>2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 3/4" Forged Steel Gate Valve and 4" Class 300 Gate Valve. See "Available Low E Technology".</p> <p>Velan gate valves greater than 4" in size do not meet the specifications of the Consent Decree. Test data was provided for an 8" Class 300 Gate Valve which was tested to ISO 15848-1 results were recorded in leak rate.</p>	See: Velan Response
Gate Valve	Vogt	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Vogt Information Request
Globe Valve	Bonney Forge	No	2013: Company warranty did not meet the specifications of the Consent Decree.	Partial	2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 1 1/2" Class 800 Forged Steel Globe Valve . See " Commercially Available Valves ".	See: Bonney Forge Response
Globe Valve	Cooper	No	2012: No warranty provided.	No	<p>2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed per ISO 15848-1 (leak rate).</p> <p>2013: No response.</p>	See: Cooper Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Globe Valve	Douglas Chero	No	2012 and 2013: Company indicated that a warranty could be provided, however, they did not provide a warranty.	No	2012: No globe valve test data was provided. 2013: No additional test data provided.	See: Douglas Chero Response
Globe Valve	Kitz	No	2013: Warranty was supplied, however the test data for a 4" 300# Gate Valve did not reasonably support the warranty.	No	2013: No globe valve test data was provided.	See: Kitz Response
Globe Valve	Ladish	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Ladish Information Request
Globe Valve	Neway	N/A	Company did not provide a response in 2012 and 2013.	N/A	Company did not provide a response in 2012 and 2013.	See: Neway Information Requests
Globe Valve	Newco	No	2012 and 2013: Company warranty did not meet the specifications of the Consent Decree.	No	2012: Company provided data that did not meet specifications of the Consent Decree. Valve testing completed per ISO 15848-1 (leak rate). 2013: No additional test data	See: Newco Response
Globe Valve	SWI	N/A	2013: Company did not indicate that a warranty could be provided.	Partial	2013: Company provided data that met specifications of the Consent Decree. Test data was provided Class 800 1" Forged Steel Globe Valve #800 and Class 1500 1" Forged Steel Globe Valve. See "Commercially Available Valves" .	See: SWI Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Globe Valve	Velan	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	No	2013: No globe valve test data was provided.	See: Velan Response
Globe Valve	Vogt	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Vogt Information Request
Needle Valve	Hoke (Tubing Valves)	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Hoke Information Request
Needle Valve	Parker (Tubing Valves)	N/A	Company did not provide a response in 2012 or 2013.	N/A	Company did not provide a response in 2012 or 2013.	See: Parker Information Request
Needle Valve	Swagelok (Tubing Valves)	No	2012: Company stated that all products are covered under a standard lifetime warranty, but the warranty does not meet the specifications of the Consent Decree.	No	2012: Company did not provide data to meet the specifications of the Consent Decree. Test data was not provided, however a summary letter was provided stating the testing was completed per ISO 15848-1 (leak rate) and results are correlated to be below 100 ppm. 2013: No test data provided.	See: Swagelok Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Plug Valve	Durco	No	2012: No warranty provided.	No	2012: No test data provided. 2013: No response.	See: Flowserve Information Request
Plug Valve	Fluoroseal	No	2012 and 2013: No warranty provided.	No	<p>2012: Company did not provide data to meet the specifications of the Consent Decree. The test procedure provided for the 2" Class 150 Severe Service plug valve did not include thermal cycles. Testing took place at ambient temp. 2" Class 150 plug valve, test data indicates max leak at 561ppm. Testing did not include thermal cycles. Testing took place at ambient temp. Test data provided for 6" Class 600 Fluoroseal Plug Valve, 1" Class 600 Fluoroseal Plug Valve, 2" Class 600 Fluoroseal Plug Valve, 2" Class 600 Fluoroseal Severe Service Plug Valve, and 8" Class 600 Fluoroseal Plug Valve and results were reported in leak rate.</p> <p>2013: No additional test data provided.</p>	See: Fluoroseal Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Plug Valve	Tufline	No	2012: Questionnaire stated warranty would be available for selected valves, but did not provide an example.	No	2012: Full test results were not provided only a summary of results were provided. Testing procedure did not include thermal cycles. Also, any leak above 500 ppm was adjusted and not included in calculating an average leak. 2013: No response.	See: Xomox/Tufline Information Request
Packing	Chesterton	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Partial	2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 5 rings of 1622 packing. Test data was also provided for 1724E packing. 1724E packing is designed for Control Valves. The packing requires live loading kits which may require modification. See "Available Low E Technology" tab.	See: Chesterton Response

Equipment Type	Manufacturer Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Reference Material
Packing	Garlock	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Partial	<p>2013: Company provided data that met specifications of the Consent Decree. Test data was provided for die-formed 9000 EVSP with 7 rings recommended. This may be problematic for most applications due to unknown packing gland size</p> <p>Company also provided data for braided packing 1303 FEP that met specifications of the Consent Decree.</p>	See: Garlock Response
Packing	Teadit	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Partial	<p>2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 2237 packing, which is for live-loaded for control valves</p> <p>Company also provided data for 2236 packing.</p>	See: Teadit

Appendix: Commercially Available

NOTE: Each annual report will be an update of the original 2012 determinations. Refer to 2012 ELP Compliance Status Report submitted on 7/31/2012 for previously submitted Relevant Documentation.

Equipment Type	Nominal Valve Size	Manufacturers Surveyed	Acceptable Warranty (Yes or No)	Explanation	Acceptable Testing Data (Yes or No)	Explanation	Low E Valves Commercially available	Reference Material
Ball Valve	All	Velan	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Yes	2013: Test data provided for 3" 300# Split body Full Port 316 Stainless Steel Ball Valve.	Yes: Velan Split body full port ball valves. Carbon Steel, Stainless Steel and Alloy 20	See: Velan Response
Gate Valve	Cast Steel: 2-24 inch Forged Steel: Full Port- 1/4-2 inch Forged Steel: Reduced Port- 1/2-2 inch	Bonney Forge	No	2012 and 2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Yes	2013: Test data provided for 3/4" 800# forged steel valve and 4" Class 300 cast steel valve.	Yes: Bonney Forge Cast Carbon Steel and Stainless Steel Gate Valves Yes: Bonney Forge Forged Carbon Steel and Stainless Steel Gate Valves	See: Bonney Forge Response

Gate Valve	Pressure Class 150: 2-48 inch Pressure Class 300: 2-30 inch	Larsen and Toubro LLC	N/A	2012: Company did not indicate that a warranty could be provided.	Yes	2012: Company provided data that met specifications of the Consent Decree. Test data provided was for 4" gate valve Class 300.	Yes: Larsen and Toubro LLC Cast Carbon Steel and Stainless Steel Gate Valves.	See: Larsen and Toubro LLC Response
Gate Valve	Forged Steel: 1 1/2 inch and below	SWI	N/A	2013: Company did not indicate that a warranty could be provided.	Yes	2013: Company provided data that met specifications of the Consent Decree. Test data provided was for 1" Forged Steel Gate Valve #800.	Yes: SWI Forged Carbon Steel and Stainless Steel Gate Valves.	See: SWI Response
Gate Valve	Forged Steel: Pressure Class 800. 1 1/2 inch and below Forged and Cast Steel: Pressure Class 300. 4 inch and below.	Velan	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Yes	2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 3/4" Forged Steel Gate Valve and 4" Class 300 Gate Valve.	Yes: Velan Forged and Cast Carbon and Stainless Steel Gate Valves.	See: Velan Response
Globe Valve	All	Bonney Forge	No	2013: Company stated they would not provide a warranty to the specifications of the Consent Decree.	Yes	2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 1 1/2" Class 800 Forged Steel Globe Valve.	Yes: Bonney Forge Forged Carbon and Stainless Steel Globe Valves.	See: Bonney Forge Response

Globe Valve	All	SWI	N/A	2013: Company did not indicate that a warranty could be provided.	Yes	2013: Company provided data that met specifications of the Consent Decree. Test data was provided Class 800 1" Forged Steel Globe Valve #800 and Class 1500 1" Forged Steel Globe Valve.	Yes: SWI Forged Carbon and Stainless Steel Globe Valves.	See: SWI Response
Packing	N/A	Chesterton	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Yes	2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 5 rings of 1622 packing. Test data was also provided for 1724E packing. 1724E packing is designed for Control Valves. The packing requires live loading kits which may require modification.	N/A	See: Chesterton Response

Packing	N/A	Garlock	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Partial	<p>2013: Company provided data that met specifications of the Consent Decree. Test data was provided for die-formed 9000 EVSP with 7 rings recommended. This may be problematic for most applications due to unknown packing gland size</p> <p>Company also provided data for braided packing 1303 FEP that met specifications of the Consent Decree.</p>	N/A	See: Garlock Response
Packing	N/A	Teadit	No	2013: Company did not provide a warranty to the specifications of the Consent Decree.	Partial	<p>2013: Company provided data that met specifications of the Consent Decree. Test data was provided for 2237 packing, which is for live-loaded for control valves.</p> <p>Company also provided data for 2236 packing.</p>	N/A	See: Teadit Response

Kischnick, Brad (A)

BAC
No Response

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: Theo Borgemeester; Tomas Paradinas; Laura Albo; Josep Ma Sanchez; esteve.bernal@bacvalves.com
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Biskupski, Kathy (KA); Burdick, Matthew (MJ)
Subject: BAC: 2013 Low E Technology
Attachments: Re: LDAR Low Fugitive Emission Questionnaire; Fw: LDAR Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.
- Or
- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or

(b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. All responses must be received by February 28th in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: Mark Slayton
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: Bonney Forge: 2013 Low E Technology
Attachments: Fwd: LDAR Low Fugitive Emission Questionnaire; FW: LDAR Low Fugitive Emission Questionnaire-follow up questions

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: Matt Dancho [mdancho@bonneyforge.com]
Sent: Friday, February 08, 2013 5:37 PM
To: Smith, Vanessa (A)
Cc: Mark Slayton
Subject: RE: Bonney Forge: 2013 Low E Technology
Attachments: BF-PE-LTR-2013-003.pdf; BF-PE-PTR-2013-001.pdf; BF-PE-PTR-2013-002.pdf; BF-PE-PTR-2012-003.pdf

Vanessa,

Please find our response to the questionnaire below in "RED" font. Per your request, I have attached four (4) documents:

1. **BF-PE-LTR-2013-003:** Our Low E valve statement, which has United Valve certificates for API 622 2nd Ed testing performed on a Forged Gate, Forged Globe, and Cast Gate. We are working to get a Cast Globe, and this testing should be available in the next month or so. Please note the requirements provided to ensure maximum fugitive emissions life.
2. **BF-PE-PTR-2013-001:** Forged Gate Test Data from United Valve. This data shows that leakage was below 25 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.
3. **BF-PE-PTR-2013-002:** Forged Globe Test Data from United Valve. This data shows that leakage was below 45 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.
4. **BF-PE-PTR-2013-003:** Cast Gate Test Data from United Valve. This data shows that leakage was below 15 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.

The data provided in attachments 2 – 4 listed above is proprietary and confidential and is not permitted to be distributed or shared by Dow Chemical. Please contact me if you have any questions regarding the response to your questions or the information provided herewith.

Thanks,

Matt Dancho | Manager – Product Engineering | Bonney Forge
14496 Croghan Pike, Mount Union, PA 17066 | Tel: (814) 514-1192 | Cell: (570) 419-4337
Email: mdancho@bonneyforge.com

-----Original Message-----

From: Mark Slayton
Sent: Thursday, February 07, 2013 1:18 PM
To: Steve Thomas; Paul Heald
Cc: Sandy Brumbaugh
Subject: Fw: Bonney Forge: 2013 Low E Technology

Please see below add'l. updated info requested by Dow.

-- Original Message -----

From: Smith, Vanessa (A) <VNowak3@dow.com>
To: Mark Slayton

Cc: DeVine, Dan (DJ) <devinedj@dow.com>; rchristian@columbiapipe.com <rchristian@columbiapipe.com>; Dahl, Kathy (KA) <KADahl@dow.com>; Burdick, Matthew (MJ) <MJBurdick@dow.com>
Sent: Thu Feb 07 12:11:15 2013
Subject: Bonney Forge: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.

Yes, Bonney Forge Low-E Forged and Cast Steel Valves meet Low-E definition per the Dow Chemical Consent Decree below provided that the requirements in the attached Bonney Forge Low-E Statement are strictly adhered to. Bonney Forge valve standard valve warranty will apply unless otherwise negotiated at time of order. Bonney Forge Low-E valve line is considered qualified by extension based on the API 622 testing performed (certificates and test results provided) with results below 100 ppm (actual leakage results were 25 ppm max for gate valves and 45 ppm max for the globe valve tested). Applying the correct packing torque should repair any Bonney Forge Low E valve if leakage exceeds 100 ppm. In the unlikely event a valve cannot be field repaired by either applying the correct packing torque or replacing the packing with Bonney Forge recommended Low E field replacement packing and installation instructions, the timely and cost effective solution between the Dow and Bonney Forge will be agreed by their representatives prior to proceeding.

2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

Yes, Bonney Forge Forged Gate, Forged Globe, and Cast Gate Valves have been tested and meet the requirements of Low-E (actual leakage results were 25 ppm max for gate valves and 45 ppm max for the globe valve tested). Test data is also provided. Bonney Forge considers the test data confidential information. The test data shall not be distributed or shared by Dow Chemical without the written permission from Bonney Forge.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

(i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

(a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or

(b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

(ii) A valve (including its specific packing assembly) that:

(a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or

(b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. All responses must be received by February 28th in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith
Environmental Delivery Specialist
Office: (989) 638-7774

Cell: (989) 213-7258



FROM: Product Engineering **DATE:** January 23, 2013
SUBJECT: Forged and Cast Steel Valves; Fugitive Emissions Statement for Bonney
Forge Low E (Low Emissions) Valves
KEYWORDS: Eco-Seal Packing
PERMISSIONS: External

Bonney Forge Low E (Low Emission) Forged and Cast Steel Valves have been designed and tested for certified Low E fugitive emissions. These valves are identified as Low E "Low Emissions".

Bonney Forge Low E Forged and Cast Steel Valves have completed API 622 Second Edition fugitive emissions testing (1,510 mechanical cycles & 5 thermal cycles) with performance of less than 50 ppm without packing adjustment/re-torque during testing. United Valve test certificates are attached to this letter.

Bonney Forge recommends the following conditions of valve use to ensure Low E performance throughout the service life:

1. Store the valve in accordance with Bonney Forge Installation, Operation, and Maintenance (IOM) manual.
2. Follow all instructions as written within the supplied Bonney Forge valve shipping tags and/or Bonney Forge IOM manual and fit for service.
3. Perform inspection of the valve for visible damage.
4. Keep the valve stem free of scratches or corrosion.
5. Protect and handle the valves properly during plant construction and transportation. This includes the protection of exposed stems and the glands of valves when painting and sandblasting.
6. Verify the packing gland torque in accordance with the supplied Bonney Forge shipping tags or Bonney Forge IOM manual to maintain valve performance and reduce potential leaks above allowable limits.
7. Inspect the valves for service requirements annually at a minimum.
8. If leakage is detected above 100 ppm above background, repair is to be done in accordance with 40CFR61.242-7 and the Bonney Forge IOM Manual. Ensure the torque is at the recommended value as stated within the Bonney Forge IOM manual.

Sincerely,

Paul Heald

Paul Heald

Vice President of Product Engineering

pheald@bonneyforge.com

800-345-7546

d 281-765-3386

f 281-765-3381

www.bonneyforge.com

800.345.7546

814.542.2545

814.542.9977 fax

14496 Croghan Pike
Mount Union, PA 17066

RRC Valve





United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 1 1/2" 800# Forged Gate Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured a maximum of 25 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan

LOCATION: United Valve – Houston, Texas

CUSTOMER: Bonney Forge

EQUIPMENT: Bonney Forge Eco-Seal® - 1 1/2" 800# Gate Valve

TEST DATE: November 5, 2012 through November 10, 2012

Scott P. Ellis
Engineer, M.E.
United Valve



United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 1 1/2" 800# Forged Globe Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured a maximum of 45 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan

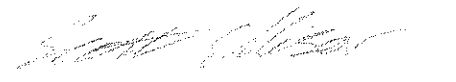
LOCATION: United Valve – Houston, Texas

CUSTOMER: Bonney Forge

EQUIPMENT: Bonney Forge Eco-Seal® - 1 1/2" 800# Globe Valve

TEST DATE: November 5, 2012 through November 10, 2012

Scott P. Ellisor
Engineer, M.E.
United Valve





United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 4" 300# Carbon Steel Gate Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured less than 25 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan
LOCATION: United Valve – Houston, Texas
CUSTOMER: Bonney Forge
EQUIPMENT: Bonney Forge Eco-Seal® - 4" 300# Gate Valve
TEST DATE: September 5, 2012 through September 12, 2012

Scott P. Ellisor
Engineer, M.E.
United Valve

Kischnick, Brad (A)

From: Matt Dancho [mdancho@bonneyforge.com]
Sent: Tuesday, April 23, 2013 4:24 PM
To: DeVine, Dan (DJ)
Cc: Mark Slayton; Burdick, Matthew (MJ); Smith, Vanessa (A); Threet, Toby (TA); Steve Thomas; Paul Heald
Subject: RE: Bonney Forge: 2013 Low E Technology
Attachments: BF-PE-LTR-2013-003.pdf

Dan,

ASME B16.34 and API 600/602 are design standards. All of our valves meet ASME B16.34. Only certain valves will meet API 600 or 602. For example, cast globe valves are not covered by API 600, therefore they would only meet certain aspects of this standard that apply. API is working on a standard that covers large globe valves but it has not been published yet. These standards do not cover fugitive emissions performance, which is what you are really interested in.

Regarding packing sealing performance, we have performed testing on our valves using the methods in API 622 (1510 mechanical cycles / 5 thermal cycles going from ambient to 500F and back down again) on both forged and cast gate and globe valves. Based on the fugitive emission tests, we certify that our valves are below 100 ppm and are typically below 50 ppm. I have attached our low emission statement which we should have the information you need. It has a statement regarding leakage performance, discussion on how to maintain valves to ensure low emission performance, and four certificates from United Valve (3rd party) who performed the tests on our valves, which certify the low emission performance.

ally, the answer to your question – The fugitive emission results are independent of the code that the valve is being built, and you can expect that all Bonney Forge gate and globe valves supplied as Low Emission valves will have fugitive emission performance.

Let me know if you need anything else.

Thanks,

Matt Dancho | Manager – Product Engineering | Bonney Forge
14496 Croghan Pike, Mount Union, PA 17066 | Tel: (814) 514-1192 | Cell: (570) 419-4337
Email: mdancho@bonneyforge.com

From: DeVine, Dan (DJ) [mailto:devinedj@dow.com]
Sent: Tuesday, April 23, 2013 3:37 PM
To: Matt Dancho
Cc: Mark Slayton; Burdick, Matthew (MJ); Smith, Vanessa (A); Threet, Toby (TA)
Subject: RE: Bonney Forge: 2013 Low E Technology

Matt,

Reading from your response below, "The Forged Gate and Globe valves are designed to API 602 and ASME B16.34." Does this mean it fully meets both standards, or it has components that are built to both standards? Or does it depend on the size range (for example API 602 through sizes NPS 2, then ASME B16.34 through NPS 24)?

and "The Cast Gate valve is designed to API 600 and ASME B16.34." I have the same questions.

Why I am asking, or what I really need to know: Would the sealing test results that were provided (if there were for an API 600 and API 602 valve only) apply (or extend) to a valve built to code ASME B16.34. Could I expect the same low emission leak performance, independent of the code it was built to, based on packing gland design?

Please let me know. I appreciate your help.

Thanks,

Dan DeVine

*Valve and Sealing Technical Resource Leader
Engineering Solutions
The Dow Chemical Company
Office: 989-636-4330*

From: Matt Dancho [<mailto:mdancho@bonneyforge.com>]
Sent: Friday, April 12, 2013 4:41 PM
To: DeVine, Dan (DJ)
Cc: Mark Slayton; Burdick, Matthew (MJ); Smith, Vanessa (A)
Subject: RE: Bonney Forge: 2013 Low E Technology

Dan,

The Forged Gate and Globe valves are designed to API 602 and ASME B16.34. The Cast Gate valve is designed to API 600 and ASME B16.34.

Let me know if you need anything else.

Thanks,

Matt Dancho | Manager – Product Engineering | Bonney Forge
14496 Croghan Pike, Mount Union, PA 17066 | Tel: (814) 514-1192 | Cell: (570) 419-4337
Email: mdancho@bonneyforge.com

From: DeVine, Dan (DJ) [<mailto:devinedj@dow.com>]
Sent: Friday, April 12, 2013 4:09 PM
To: Matt Dancho
Cc: Mark Slayton; Burdick, Matthew (MJ); DeVine, Dan (DJ); Smith, Vanessa (A)
Subject: FW: Bonney Forge: 2013 Low E Technology

Matt,
Can you please tell me what standard each of these valves for which you provided test data are being built to? I need this for my documentation.

I would appreciate it.

Thanks!

Dan DeVine

*Valve and Sealing Technical Resource Leader
Engineering Solutions
The Dow Chemical Company
Office: 989-636-4330*

From: Matt Dancho [mailto:mdancho@bonneyforge.com]

Sent: Friday, February 08, 2013 5:37 PM

To: Smith, Vanessa (A)

Cc: Mark Slayton

Subject: RE: Bonney Forge: 2013 Low E Technology

Vanessa,

Please find our response to the questionnaire below in "RED" font. Per your request, I have attached four (4) documents:

1. **BF-PE-LTR-2013-003:** Our Low E valve statement, which has United Valve certificates for API 622 2nd Ed testing performed on a Forged Gate, Forged Globe, and Cast Gate. We are working to get a Cast Globe, and this testing should be available in the next month or so. Please note the requirements provided to ensure maximum fugitive emissions life.
2. **BF-PE-PTR-2013-001:** Forged Gate Test Data from United Valve. This data shows that leakage was below 25 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.
3. **BF-PE-PTR-2013-002:** Forged Globe Test Data from United Valve. This data shows that leakage was below 45 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.
4. **BF-PE-PTR-2013-003:** Cast Gate Test Data from United Valve. This data shows that leakage was below 15 ppm static throughout the 1510 Mechanical Cycle / 5 Thermal Cycle API 622 2nd Ed test (note no packing adjustments). This is proprietary and confidential information.

The data provided in attachments 2 – 4 listed above is proprietary and confidential and is not permitted to be distributed or shared by Dow Chemical. Please contact me if you have any questions regarding the response to your questions or the information provided herewith.

Thanks,

Matt Dancho | Manager – Product Engineering | Bonney Forge
14496 Croghan Pike, Mount Union, PA 17066 | Tel: (814) 514-1192 | Cell: (570) 419-4337
Email: mdancho@bonneyforge.com

-----Original Message-----

From: Mark Slayton

Sent: Thursday, February 07, 2013 1:18 PM

To: Steve Thomas; Paul Heald

Cc: Sandy Brumbaugh

Subject: Fw: Bonney Forge: 2013 Low E Technology

Please see below add'l. updated info requested by Dow.

----- Original Message -----

From: Smith, Vanessa (A) <VNowak3@dow.com>

To: Mark Slayton

Cc: DeVine, Dan (DJ) <devinedj@dow.com>; rchristian@columbiapipe.com <rchristian@columbiapipe.com>; Dahl, Kathy (KA) <KADahl@dow.com>; Burdick, Matthew (MJ) <MJBurdick@dow.com>

Sent: Thu Feb 07 12:11:15 2013

Subject: Bonney Forge: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.

Yes, Bonney Forge Low-E Forged and Cast Steel Valves meet Low-E definition per the Dow Chemical Consent Decree below provided that the requirements in the attached Bonney Forge Low-E Statement are strictly adhered to. Bonney Forge valve standard valve warranty will apply unless otherwise negotiated at time of order. Bonney Forge Low-E valve line is considered qualified by extension based on the API 622 testing performed (certificates and test results provided) with results below 100 ppm (actual leakage results were 25 ppm max for gate valves and 45 ppm max for the globe valve tested). Applying the correct packing torque should repair any Bonney Forge Low E valve if leakage exceeds 100 ppm. In the unlikely event a valve cannot be field repaired by either applying the correct packing torque or replacing the packing with Bonney Forge recommended Low E field replacement packing and installation instructions, the timely and cost effective solution between the Dow and Bonney Forge will be agreed by their representatives prior to proceeding.


2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

Yes, Bonney Forge Forged Gate, Forged Globe, and Cast Gate Valves have been tested and meet the requirements of Low-E (actual leakage results were 25 ppm max for gate valves and 45 ppm max for the globe valve tested). Test data is also provided. Bonney Forge considers the test data confidential information. The test data shall not be distributed or shared by Dow Chemical without the written permission from Bonney Forge.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

(a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or

 is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

(ii) A valve (including its specific packing assembly) that:

(a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or

(b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.



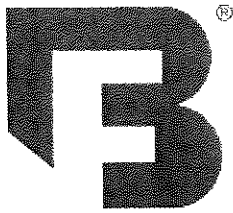
Thank you for your time and assistance with this matter. All responses must be received by February 28th in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith
Environmental Delivery Specialist
Office: (989) 638-7774

Cell: (989) 213-7258





BF-PE-LTR-2013-003
Revision 2

BONNEY FORGE

FROM: Product Engineering **DATE:** January 23, 2013
SUBJECT: Forged and Cast Steel Valves; Fugitive Emissions Statement for Bonney Forge Low E (Low Emissions) Valves
KEYWORDS: Eco-Seal Packing
PERMISSIONS: External

Bonney Forge Low E (Low Emission) Forged and Cast Steel Valves have been designed and tested for certified Low E fugitive emissions. These valves are identified as Low E "Low Emissions".

Bonney Forge Low E Forged and Cast Steel Valves have completed API 622 Second Edition fugitive emissions testing (1,510 mechanical cycles & 5 thermal cycles) with validated leak rates below 50 ppm without packing adjustment/re-torque during testing. United Valve test certificates are attached to this letter.

Bonney Forge recommends the following conditions of valve use to ensure Low E performance throughout the service life:

1. Store the valve in accordance with Bonney Forge Installation, Operation, and Maintenance (IOM) manual.
2. Follow all instructions as written within the supplied Bonney Forge valve shipping tags and/or Bonney Forge IOM manual and fit for service.
3. Perform inspection of the valve for visible damage.
4. Keep the valve stem free of scratches or corrosion.
5. Protect and handle the valves properly during plant construction and transportation. This includes the protection of exposed stems and the glands of valves when painting and sandblasting.
6. Verify the packing gland torque in accordance with the supplied Bonney Forge shipping tags or Bonney Forge IOM manual to maintain valve performance and reduce potential leaks above allowable limits.
7. Inspect the valves for service requirements annually at a minimum.
8. If leakage is detected above 100 ppm above background, repair is to be done in accordance with 40CFR61.242-7 and the Bonney Forge IOM Manual. Ensure the torque is at the recommended value as stated within the Bonney Forge IOM manual.

Sincerely,

Paul Heald

Paul Heald

Vice President of Product Engineering

pheald@bonneyforge.com

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800 345 7546
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814 512 9977 fax

14496 Crogan Pike
Mason, Union, Pa 17055

RBC Valve



Price,
Quality,
Service



United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 1 1/2" 800# Forged Gate Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured a maximum of 25 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan
LOCATION: United Valve – Houston, Texas
CUSTOMER: Bonney Forge
EQUIPMENT: Bonney Forge Eco-Seal® - 1 1/2" 800# Gate Valve
TEST DATE: November 5, 2012 through November 10, 2012

Scott P. Ellisor
Engineer, M.E.
United Valve



United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 1 1/2" 800# Forged Globe Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured a maximum of 45 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan

LOCATION: United Valve – Houston, Texas

CUSTOMER: Bonney Forge

EQUIPMENT: Bonney Forge Eco-Seal® - 1 1/2" 800# Globe Valve

TEST DATE: November 5, 2012 through November 10, 2012

Scott P. Ellisor
Engineer, M.E.
United Valve





United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 4" 300# Carbon Steel Gate Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycles total, consisting of 5 ambient and 5 thermal temperature ranges. The valve packing measured less than 25 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan
LOCATION: United Valve – Houston, Texas
CUSTOMER: Bonney Forge
EQUIPMENT: Bonney Forge Eco-Seal® - 4" 300# Gate Valve
TEST DATE: September 5, 2012 through September 12, 2012

Scott P. Ellisor
Engineer, M.E.
United Valve





United Valve
The Valve Service Specialists

CERTIFICATE

This is to certify that Bonney Forge Eco-Seal® packing was tested in a Standard Bonney Forge 4" 300# Carbon Steel Globe Valve in accordance with API 622 2nd Edition protocol. The valve was subjected to 1,510 mechanical cycle's total, and 5 thermal cycles. The valve packing measured less than 100 ppm throughout the duration of the test with no packing adjustments. The leakage data was recorded and signed off as in compliance with the maximum allowable leakage rates per API 622 2nd Edition Fugitive Emissions standards.

MANUFACTURER: Nippon Pillar™ - Osaka Japan
LOCATION: United Valve -- Houston, Texas
CUSTOMER: Bonney Forge
EQUIPMENT: Bonney Forge Eco-Seal® - 4" 300# Gate Valve
TEST DATE: April 2, 2013 through April 7, 2013

James A. Nelson

James A. Nelson
Engineer, I.E.
United Valve

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

Chesterton
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Friday, February 15, 2013 11:56 AM
To: 'Steve Schmidt'
Cc: DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA); 'Russ Christian'
Subject: Chesterton 2013 Low E Technology Determination
Attachments: Requested Files on Information Discussed ; Chesterton 1622 API 622 Rev. 2 Testing; Chesterton Valve Warranty; Chesterton's Fugitive Emission Warranty; Initial Draft Warranty.PDF; RE: FDA Approved Packing Needs ; RE: Chesterton Low E Warranty

Good morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

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- (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
- (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:

- (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
- (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Office: (989) 638-7774

Cell: (989) 213-7258

Cooper
No Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: 'grestovic@coopervalves.com'; 'aryan@coopervalves.com'; 'pkapuza@coopervalves.com'; 'acasner@coopervalves.com'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Cooper: 2013 Low E Technology
Attachments: Fw: LDAR Info

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

Dezurik
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Wednesday, February 13, 2013 11:34 AM
To: 'jstewart@kennedyind.com'
Cc: Burdick, Matthew (MJ); Dahl, Kathy (KA); DeVine, Dan (DJ); 'Russ Christian'
Subject: Dezurik 2013 Low E Technology Determination
Attachments: DOW Michigan Low-E Valve Questionnaire.docx

Good Morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Unfortunately, we did not receive a completed questionnaire in 2012. We are now working on our 2013 Low Emission Technology determinations according to the Consent Decree and attached is the questionnaire that was previously sent.

Could you please review and complete the questionnaire? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

The Dow Chemical Company
Environmental Delivery Specialist
Office: (989) 638-7774
Cell: (989) 213-7258

Smith, Vanessa (A)

From: Jerry Stewart [jstewart@kennedyind.com]
ent: Monday, February 25, 2013 8:32 AM
.o: Smith, Vanessa (A)
Cc: Steve Harkness
Subject: Dezurik 2013 Low E Technology
Attachments: Test 2405 -Fugitive Emissions.PDF; DeZURIK Engineering Report #9503.pdf; Dow fugitive questions - DeZURIK reply 022413.doc

Vanessa,
Please see the attaché response from Dezurik.

Please contact our office if you have any questions.
Thank you,

Jerry Stewart
(248) 573-1621 Direct
(248) 486-0955 Fax
(248) 684-1200 Main Office
www.kennedyind.com



DeZurik Engineering Report #9503

**TMD, G2 and G2L
G2D and G2DL
Packing Options
Tests for
DeZurik BHP
Butterfly Valves**

Prepared By: Jim Barker
Project Engineer
March 8, 1995

INTRODUCTION

Statutory changes for a cleaner environment have prompted Congress to enact strict regulations for fugitive emissions. In order to enable DeZurik customers to meet these strict requirements, DeZurik launched an extensive research and development program in 1991 to find the best available technology in packings and seals for its extreme service product lines. The complete design and construction of the product lines were reviewed.

A committee was formed with representatives from Marketing and Product Engineering. A seminar on the Clean Air Act was attended and a review of all the pertinent regulations including California Rule 1173 and EPA Method 21 was completed. A review of available test equipment was completed and equipment purchased for development testing.

A review of DeZurik product lines indicated that it was necessary to add improved packing options on three products. Those products identified are the BHP Butterfly valve line, the V-Port Ball valve line and the Permaseal plug valve line.

Initial testing was completed on many different types of packings and seals that would be pertinent to all product lines. Shaft and stuffing box finishes were reviewed and various finishes were tested. After initial testing was completed to determine which packing/seals to develop, three separate, but simultaneous projects were launched to make best available technology, state of the art packings and seals available on these product lines. This report is an overview of the testing, the procedures used, test methods, a compilation of the test results, and conclusions reached for the BHP Butterfly valve product line.

PROCEDURE

1. 6 inch Class 150 HP butterfly valves were assembled according to standard DeZurik procedures. Packing was installed and adjusted in compliance with manufactured recommendations.
2. During the cycle testing, packings were adjusted in conformance to the recommendations of the packing supplier.
3. Standard shell and seat tests were performed per the standard DeZurik Test Spec. All tests were started with 0 (zero) PPM packing leakage.

4. The valves were cycled with air as the media to a pressure of 150 PSID on the closed valve. The valve was then opened and the differential pressure allowed to drop to zero. The valve was again cycled closed and the 150 psi was applied. One valve cycle consisted of full closed to full open to full closed. The valves were cycled in this manner throughout the duration of the test, at the rate of 1 cycle every 5 seconds.
5. Packing leakage was measured throughout the tests using a FOXBORO OVA 88 Century Organic Vapor Analyzer to accurately determine if the valve packing leakage was exceeding the equivalent of 50 PPM of methane. This was accomplished by pressurizing with 160 PSI methane, then adding nitrogen to increase the pressure to 285 PSI. This was done first with the valve in the open position and then with the valve closed. Using this procedure 28 PPM was determined to be the equivalent of 50 PPM if 100% methane was used for testing. Measurements were taken at the sniffer ports between the packing sets and at the outside around the stem and packing at the outer most packing.
6. Tests were run at ambient temperature.

TEST EQUIPMENT

FOXBORO OVA 88 Century Organic Vapor Analyzer
Marshalltown Gages (Calibrated)
Redington Cycle Counter
2500 PSI Nitrogen Cylinder
2200 PSI Methane Cylinder Regulated to 160 PSIG
NPS 6 ANSI Class 150 Test Stand

TMD PACKING OPTION

The TMD packing option is a PTFE dual seal packing with a mechanical spring in the primary set of packing to provide a live loading mechanism. The secondary packing is a chevron style PTFE packing that is retained by a gland with only a slight load applied to the packing until there is leakage past the primary packing seal. When leakage past the primary seal is detected, the secondary packing is adjusted to zero leakage and the sniffer ports are plugged to prevent leakage to the atmosphere. See Figure 1 for a graphical description of the TMD Packing option.

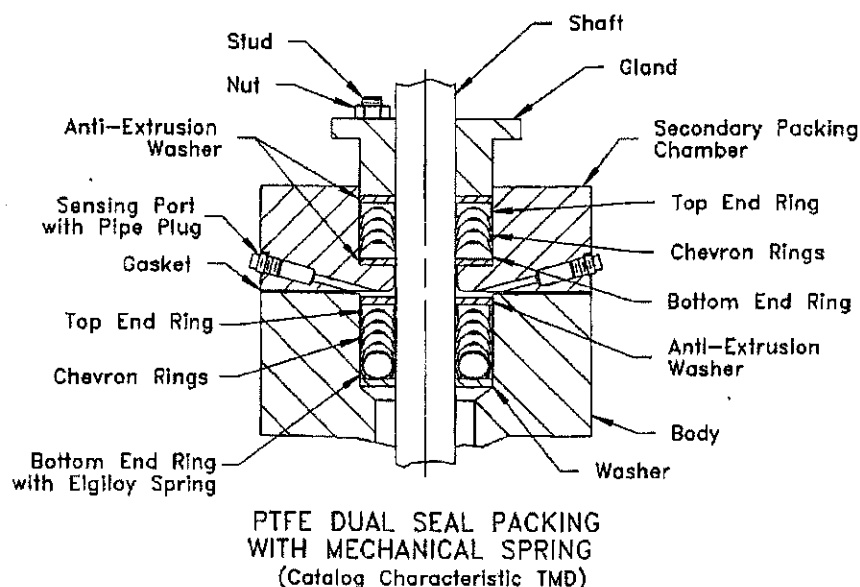


FIGURE 1

TMD TEST RESULTS

Table 1 indicates the test results of the TMD Packing option. The leak expressed in PPM (parts per million) of methane is leakage past the primary seal.

DeZurik Packing Option TMD (PTFE Dual Packing Arrangement)	
Packing Leakage	Cycles
0 (zero) PPM	0 (zero) to 70,000 cycles
25 PPM or less	70,000 to 101,000 cycles
50 PPM or less	101,000 to 293,000 cycles
100 PPM or less	293,000 to 345,000 cycles

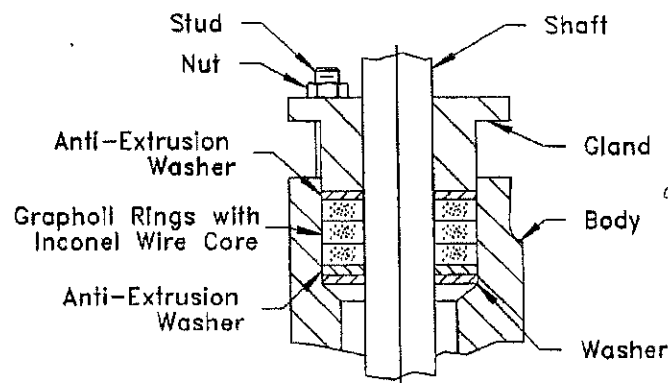
Table 1

TMD CONCLUSIONS

DeZurik TMD (PTFE) dual packing arrangements provide improved sealability and cycle life over more traditional packings. Improvements are made in less frequent adjustments, increased numbers of cycles prior to the first adjustment and longer packing life.

G2 PACKING OPTION

The G2 Packing option is designed primarily for high temperature and fire safe valves. It includes a graphite foil wrapped around a core of Inconel wire and graphite. A gland is installed outboard of the packing to allow for packing adjustments (see Figure 2).



GRAPHOIL PACKING
(Catalog Characteristic G2)

Figure 2

Table 2 indicates the test results of the G2 packing option. The leak expressed in PPM (parts per million) of methane is leakage past the packing.

DeZurik Packing Option G2 (Graphoil Packing Arrangement)		
Packing Leakage	Packing Adjustment frequency (cycles)	Cycles
30 PPM or less	none	0 - 8,000
50 PPM or less	6,000	8,000 - 70,000
50 PPM or less	15,000	70,000 - 115,000
100 PPM or less	50,000	115,000 - 275,000
200 PPM or less	85,000	275,000 - 360,000
30 PPM or less	48,000	360,000 - 408,000
200 PPM or less	75,000	408,000 - 583,000
10 PPM or less	108,000	583,000 - 695,000
50 PPM or less	116,000	695,000 - 811,000

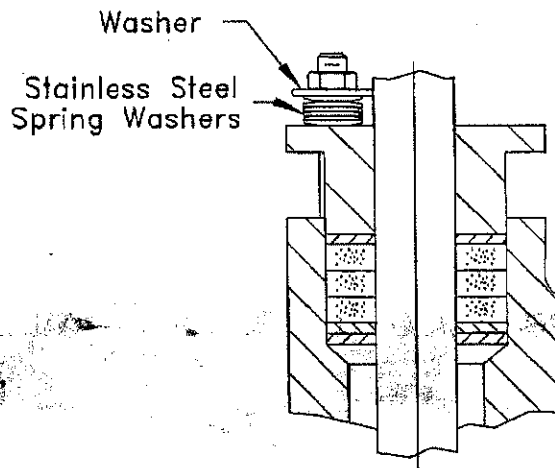
Table 2

G2 CONCLUSIONS

The DeZurik G2 (Graphoil) packing arrangement provides improved sealability and cycle life over more traditional types of packings. Improvements are made in less frequent adjustments, increased numbers of cycles prior to the first adjustment and longer packing life.

G2L PACKING OPTION

The G2L packing option is designed primarily for valves with a wide range of application temperatures. It includes a graphite foil wrapped around a core of Inconel wire and graphite. A gland is installed outboard of the packing to allow for packing adjustment. Spring washers are installed on the packing studs to provide live loading to the packing (see figure 3).



GRAPHOIL PACKING
LIVE LOADED
(Catalog Characteristic G2L)

Figure 3

Table 3 indicates the test results of the G2L packing option. The leak expressed in PPM (parts per million) of methane is leakage past the packing.

DeZurik Packing Option G2L (Live Loaded Graphoil Packing Arrangement)		
Packing Leakage	Packing Adjustment Frequency (Cycles)	Cycles
0 PPM	None	0 - 20,000
12 PPM or less	None	20,000 - 47,800
50 PPM or less	10,000	47,800 - 93,600

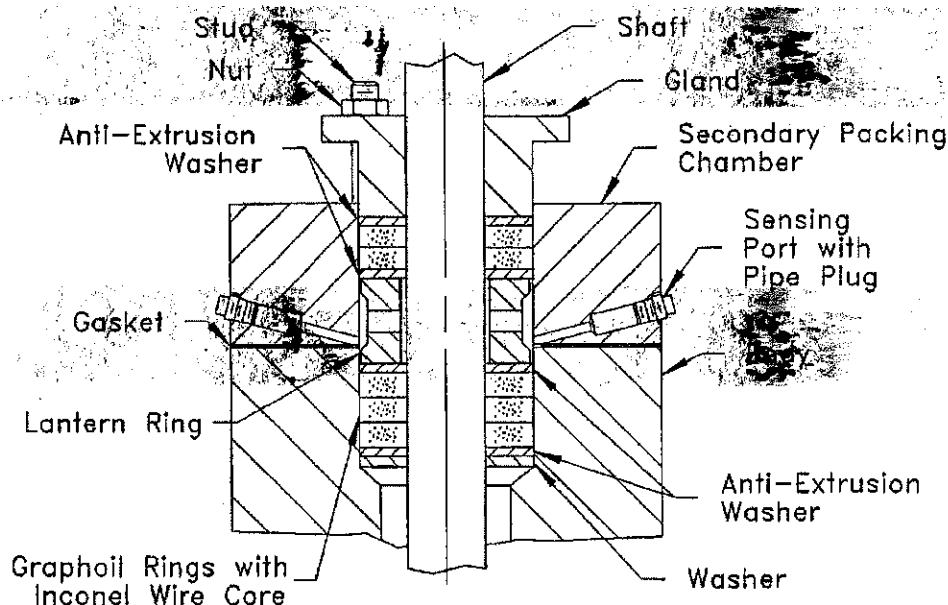
Table 3

G2L CONCLUSIONS

The DeZurik G2L (Graphoil) packing arrangement provides improved sealability and cycle life over more traditional types of packings. Improvements are made in less frequent adjustments, increased numbers of cycles prior to the first adjustment and longer packing life.

G2D PACKING OPTION

The G2D packing option is a dual seal packing and is designed primarily for valves with a wide range of application temperatures. It includes a graphite foil wrapped around a core of Inconel wire and graphite. A gland is installed outboard of the secondary packing to allow for packing adjustment. When leakage past the primary packing is detected at the sensing ports, the packing is adjusted to zero leakage (see figure 4).



GRAPHOIL DUAL SEAL PACKING
(Catalog Characteristic G2D)

Figure 4

Table 4 indicates the test results of the G2D Packing option. The leak expressed in PPM (parts per million) of methane is leakage past the primary packing. Packing adjustments were made when leakage exceeded 50 PPM.

DeZurik Packing Option G2D (Dual Graphoil Packing Arrangement)		
Packing Leakage	Packing Adjustment Frequency (Cycles)	Cycles
0 (Zero) PPM	25,000	0 - 54,700
25 PPM or less	10,000	54,700 - 79,200
30 PPM or less	25,000	79,200 - 131,200
35 PPM or less	10,000	131,200 - 159,800

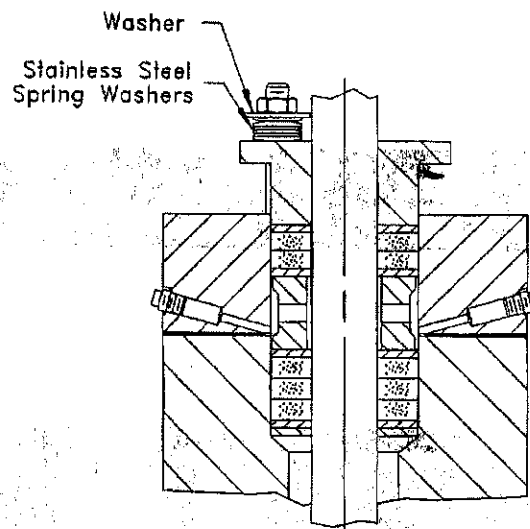
Table 4

G2D CONCLUSIONS

The DeZurik G2D (Graphoil) dual packing arrangement provides improved sealability and cycle life over more traditional types of packings. Improvements are made in less frequent adjustments, increased numbers of cycles prior to the first adjustment and longer packing live.

G2DL PACKING OPTION

The G2DL packing option is a dual seal packing and is designed primarily for valves with a wide range of application temperatures. It includes a graphite foil wrapped around a core of Inconel wire and graphite. A gland is installed outboard of the secondary packing to allow for packing adjustment. When leakage past the primary packing is detected at the sensing ports, the packing is adjusted to zero leakage. Spring washers are installed on the packing studs to provide live loading to the packing (see figure 5).



GRAPHITE DUAL SEAL PACKING
LIVE LOADED
(Catalog Characteristic G2DL)

Figure 5

Table 5 indicates the test results of the G2DL packing option. The leak expressed in PPM (parts per million) of methane is leakage past the packing. Packing adjustments were made when leakage past the packing exceeded 50 PPM.

DeZurik Packing Option G2DL (Live Loaded Graphoil Packing Arrangement)		
Packing Leakage	Packing Adjustment Frequency (Cycle)	Cycles
0 (Zero) PPM	None	0 - 14,000
25 PPM or Less	15,000	14,000 - 54,500
30 PPM or Less	40,000	54,500 - 141,700

Table 5

G2DL CONCLUSIONS

The G2DL (Graphoil) dual packing arrangement provides improved sealability and cycle life over more traditional types of packing with live loading. Improvements are made in less frequent adjustments, increased numbers of cycles prior to the first adjustment and longer packing life.



250 Riverside Ave N 320-259-2000 p
Sartell, MN 56377 USA 320-259-2227 f

To: Dow Michigan Operations
Re: Low Emissions Valve Questions

- 1) Yes, we can provide and warranty valve for 5 years for fugitive emissions. We have attached our report concerning fugitive emissions testing and there are number of packing choices and valves that we provide to meet the requirements. To provide the 5 year warranty, we would need to confirm the valve and packing selections meet the application requirements including cycle /operating strokes.
- 2) Yes, 2" – 48" high performance butterfly, 1" -20" V-port ball valve, and 1" – 12" rotary control valve
- 3) 6" high performance butterfly
- 4) 2" – 48" high performance butterfly, 1" -20" V-port ball valve, and 1" – 12" rotary control valve
- 5) Yes, see attached
- 6) Yes
- 7) Same as noted above - 2" – 48" high performance butterfly, 1" -20" V-port ball valve, and 1" – 12" rotary control valve
- 8) not sure of what is being asked. Packing types & brands were tested and we will warranty those that we tested that meet your criteria and application.
- 9) See Test Reports attached
- 10) Yes

Please contact me at wayne.norberg@dezurik.com or phone 320-309-2190 for further questions.

Sincerely,

Wayne Norberg
Regional Sales Manager

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

Douglas Chero
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: vdilucchio@douglas-cherco.com
cc: rchristian@columbiapipe.com; DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Douglas Chero: 2013 Low E Technology
Attachments: FW: LDAR Low Fugitive Emission Questionnaire; FW: LDAR Low Fugitive Emission Questionnaire-follow up; RE: LDAR Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Durco / Flowserve
No Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Friday, February 15, 2013 10:50 AM
To: 'Lew Allen (lallen@flowserve.com)'
Cc: rchristian@columbiapipe.com; Burdick, Matthew (MJ); DeVine, Dan (DJ); Dahl, Kathy (KA)
Subject: Flowserve: 2013 Low E Technology
Attachments: RE: LDAR Low Fugitive Emission Questionnaire; FW: LDAR Low Fugitive Emission Questionnaire

Good morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

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- Or
- (ii) A valve (including its specific packing assembly) that:
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Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Fluoroseal
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: 'aroquet@fluorosealvalves.com'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Fluoroseal: 2013 Low E Technology
Attachments: FW: LDAR Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

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Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: Alain Roquet [aroquet@fluorosealvalves.com]
Sent: Thursday, February 07, 2013 12:35 PM
To: Smith, Vanessa (A)
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA); sales@fluorosealvalves.com; usasales@fluorosealvalves.com
Subject: RE: Fluoroseal: 2013 Low E Technology

Dear Ms. Smith,

Please note our response below.

Best regards,

Alain Roquet

Sales Director
T: (514) 739-0220
F: (514) 739-5452
www.fluorosealvalves.com

From: Smith, Vanessa (A) [mailto:VNowak3@dow.com]
Sent: Thursday, February 07, 2013 12:12 PM
To: aroquet@fluorosealvalves.com
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Fluoroseal: 2013 Low E Technology

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 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

Garlock
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Friday, February 15, 2013 12:05 PM
To: 'Wilkin, Paul'; Lingard, David
Cc: DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA); 'Russ Christian'
Subject: Garlock 2013 Low E Technology Determination
Attachments: RE: EPA Consent decree / EVSP; 212-ULE WAR 5-2009.pdf; 9000 100 5 7-9-2007 (3).pdf;
FW: EPA Consent decree / EVSP; RE: 9000EVSP; DOW Michigan Low-E Valve
Questionnaire.docx

Good afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. We are now working on our 2013 Low Emission Technology determinations according to the Consent Decree and attached is a questionnaire that will help us make our determinations. Also attached are our records of information that you have previously provided.

Could you please review and complete the questionnaire? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Dow Chemical Company
Environmental Delivery Specialist
Office: (989) 638-7774
Cell: (989) 213-7258

Grinnell
No Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Wednesday, February 13, 2013 11:34 AM
To: 'Thurn, Terry'
Cc: Dahl, Kathy (KA); DeVine, Dan (DJ); Burdick, Matthew (MJ); 'Russ Christian'
Subject: Grinnell 2013 Low E Technology Determination
Attachments: DOW Michigan Low-E Valve Questionnaire.docx

Terry,

Thank you for your response regarding KTM valves. I look forward to hearing the results of your review.

Additionally, I do not have record of a completed questionnaire for Grinnell valves. Attached is the questionnaire that was previously sent in early 2012.

Could you please review and complete the questionnaire for Grinnell? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

The Dow Chemical Company
Environmental Delivery Specialist

Office: (989) 638-7774
Cell: (989) 213-7258

Hoke
No Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Wednesday, February 13, 2013 11:34 AM
To: 'sales-hoke@circortech.com'; 'Mbeabers@jhbennett.com'
Cc: DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA); 'Russ Christian'
Subject: Hoke 2013 Low E Technology Determination
Attachments: DOW Michigan Low-E Valve Questionnaire.docx

Good Morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Unfortunately, we did not receive a completed questionnaire in 2012. We are now working on our 2013 Low Emission Technology determinations according to the Consent Decree and attached is the questionnaire that was previously sent.

Could you please review and complete the questionnaire? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

The Dow Chemical Company
Environmental Delivery Specialist
Office: (989) 638-7774
Cell: (989) 213-7258

Smith, Vanessa (A)

KF
Response

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:11 PM
To: 'michael.brayner@circor.com'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: KF Contromatics: 2013 Low E Technology
Attachments: FW: Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: Brayer, Michael [Michael.Braye@circor.com]
Sent: Tuesday, February 12, 2013 3:36 PM
To: Smith, Vanessa (A)
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: RE: KF Contromatics: 2013 Low E Technology

Vanessa,

Thanks for the communication.

In direct response to your question the supportable position of Contromatics remains unchanged relative to our ability to provide a Low-E valve per the definition in the 2012 consent decree. However Contromatics is currently working in conjunction with another end user in the development of a Low-E valve capable of (<1 PPM) targeted for completion in Q2 of 2013. Upon completion of successful testing I will provide you with a copy of the test results.

Kindest regards,

Michael Brayer
Brand Leader - Contromatics
Mobile: 405.820.8960

From: Smith, Vanessa (A) [mailto:VNowak3@dow.com]
Sent: Thursday, February 07, 2013 11:12 AM
To: Brayer, Michael
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: KF Contromatics: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five

years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

- (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
- (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:

- (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
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NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

This email has been scanned by the MessageLabs inbound
Email Security System for CIRCOR International Inc.
For more information please visit <http://www.symanteccloud.com>

This email has been scanned by the MessageLabs outbound
Email Security System for CIRCOR International Inc.
For more information please visit <http://www.symanteccloud.com>

Smith, Vanessa (A)

Kitz
Response

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:12 PM
To: 'Darrell Lueckemeyer'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: Kitz: 2013 Low E Technology
Attachments: FW: Dow Low "E" Questionnaire-follow up; Dow Low "E" Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

- (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
- (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
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Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: Darrell Lueckemeyer [Darrell@kitz.com]
Sent: Monday, February 11, 2013 4:52 PM
To: Smith, Vanessa (A)
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: RE: Kitz: 2013 Low E Technology

Vanessa,

See response below in **GREEN**.

Darrell Lueckemeyer
KITZ Corporation of America
Vice President Industrial Division
281-276-6834 (Office Direct)
713-899-6028 (Cell)

From: Smith, Vanessa (A) [mailto:VNowak3@dow.com]
Sent: Thursday, February 07, 2013 11:12 AM
To: Darrell Lueckemeyer
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: Kitz: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below. YES
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data. No Additional valves added to the previous KITZ offering.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

- (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
- (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist
Dow Automotive/Dow Pharma
Office: (989) 638-7774
Cell: (989) 213-7258

Smith, Vanessa (A)

From: Darrell Lueckemeyer [Darrell@kitz.com]
Sent: Wednesday, February 27, 2013 4:34 PM
To: Smith, Vanessa (A)
Subject: RE: Kitz: 2013 Low E Technology
Attachments: ChevronTexaco - Emission Test Report.pdf; FugitiveEmission5year.docx

Vanessa,

We have had third party testing over the years, but attached please find the most stringent test done on KITZ multi-turn valves by Yarmouth Research. I also have attached a copy of the 5 year warranty that KITZ has offered. d

Darrell Lueckemeyer
KITZ Corporation of America
Vice President Industrial Division
281-276-6834 (Office Direct)
713-899-6028 (Cell)

From: Smith, Vanessa (A) [mailto:VNowak3@dow.com]
Sent: Friday, February 15, 2013 9:20 AM
To: Darrell Lueckemeyer
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: RE: Kitz: 2013 Low E Technology

 Darrell,

Thank you for the quick response. As I was reviewing past information, it seems that I do not have record of a response to the following questions from 2012.

- 1) Can Kitz provide the test data for all the valves listed as low emission in the questionnaire. It stated it would be provided but I never got any test data.
- 2) Also, is the warranty offered for 5 years per the definition in the questionnaire? It states yes, if so, can I get an example of the warranty that is offered for 5 years.

Thank you again for your assistance in this matter.


Regards,

Vanessa

From: Darrell Lueckemeyer [mailto:Darrell@kitz.com]
Sent: Monday, February 11, 2013 4:52 PM
To: Smith, Vanessa (A)
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: RE: Kitz: 2013 Low E Technology

Vanessa,

See response below in **GREEN**.

 Darrell Lueckemeyer
KITZ Corporation of America
Vice President Industrial Division

281-276-6834 (Office Direct)
713-899-6028 (Cell)

From: Smith, Vanessa (A) [<mailto:VNowak3@dow.com>]
Sent: Thursday, February 07, 2013 11:12 AM
To: Darrell Lueckemeyer
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Dahl, Kathy (KA); Burdick, Matthew (MJ)
Subject: Kitz: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below. YES
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data. No Additional valves added to the previous KITZ offering.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
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 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
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Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist
Dow Automotive/Dow Pharma
Office: (989) 638-7774
Cell: (989) 213-7258

Fugitive Emission Test Report

Performed for

**ChevronTexaco
Chevron Products Company
El Segundo Refinery
324 W. El Segundo Boulevard
El Segundo, CA 90245
www.chevrontexaco.com**

◆──◆
Kitz Valve – OEM Packing
Project Number: 20338
Test Start Date: July 22, 2003
◆──◆

Performed by

YARMOUTH RESEARCH AND TECHNOLOGY

92 East Elm Street
Yarmouth, ME 04096 USA
(207) 829-5359
yrtlab@maine.rr.com
www.yarmouthresearch.com

Yarmouth Research and Technology

PROJECT SUMMARY

Customer: Chevron Products Company		Start Date: 22-Jul-03
Contact: David Reeves		
Valve Manufacturer: Kitz Valve		Project #: 20338
Valve Product Code: 4 inch 300 SCLS Low Emission		
Packing Description: OEM packing		
Nippon Pillar "Sealever", End Rings No. 6710		
Inner Middle Rings No. 6617		
Manufacturer's Recommended Packing Torque: 18 ft-lb		
Stem Diameter: 1.021 inches		
Bore Diameter: 1.537 inches		
Number of Handwheel Turns During Cycling: 9.5 (each direction)		
Stem Travel During Cycling: 3.8 inches		
Cycling Speed: 43 RPM		
Cycling Rate: 75 seconds per cycle		
Maximum Allowable Leakage: 500 PPMv (stem static)		
Maximum Allowable Handwheel Torque: 83 ft-lb (based on 200lb pull force)		
Test Pressure: 600 psig		
Test Media: 99% Methane		

RESULTS

Reason for Test Completion: 5000 Cycles Completed	
Number of Mechanical Cycles Completed:	5000
Number of Thermal Cycles Completed:	10
Number of Packing Adjustments Required:	1

	Stem Seal Leakage Readings (PPMv)				Opening	Closing
	Static		Dynamic		Torque	Torque
	Avg.	Max.	Avg.	Max.	(ft-lb)	(ft-lb)
Average:	34	42	50	76	16	42
Maximum:	>1000	>1000	>1000	>1000	70	80

Witness

Matthew J. Wasielewski



Yarmouth Research and Technology

Customer: Chevron Products Company	Start Date: 22-Jul-03
Valve Manufacturer: Kitz Valve	Project #: 20338
Valve Product Code: 4 inch 300 SCLS Low Emission	
Packing Description: OEM packing	
Nippon Pillar "Sealever", End Rings No. 6710	
Inner Middle Rings No. 6617	
Test Results: The average and maximum leakage results shown below were calculated from 60 readings measured during a minute duration.	
Opening and closing torques are performed against the test pressure.	
See data sheets for more detailed information.	

Cycle Number	Temp (F)	Stem Seal Leakage Readings (PPMv)				Packing	Opening	Closing
		Static		Dynamic		Retorque	Torque	Torque
		Avg.	Max.	Avg.	Max.	See Note	(ft-lb)	(ft-lb)
0	Ambient	1	1	2	4		8	32
30	145	2	3	3	3	0	6	32
31	145	2	2	2	2		6	32
100	320	2	3	3	4		6	30
200	500	37	38	38	42		6	30
300	500	22	25	28	30		6	32
400	320	2	2	3	7		10	40
500	Ambient	0	0	2	3		16	40
600	320	1	1	1	2		15	42
700	500	11	12	12	15		15	40
800	500	24	25	27	34		15	40
900	320	5	6	6	9		20	40
1000	Ambient	4	4	4	6		25	40
1100	320	1	1	1	1		70	80
1200	500	4	4	5	6		44	80
1300	500	19	20	25	46		32	80
1400	320	1	2	1	1		22	60
1500	Ambient	1	1	4	5		16	40
1600	320	1	1	2	3		18	45
1700	500	12	13	13	20		18	40
1800	500	16	16	18	22		16	40
1900	320	9	9	11	14		16	40
2000	Ambient	37	47	102	162		18	45
2100	320	3	3	6	8		18	50
2200	500	17	18	23	31		18	40
2300	500	27	28	31	40		16	40
2400	320	1	1	4	8		16	42
2500	Ambient	31	32	70	91		15	40
2600	320	10	11	17	23		12	30
2700	500	8	9	10	16		14	35

Yarmouth Research and Technology

2800	500	8	9	12	16		14	40
2900	320	7	7	5	8		16	40
3000	Ambient	34	38	356	669		16	42
3100	320	14	14	27	38		14	40
3200	500	14	15	20	28		15	40
3300	500	5	6	5	8		16	46
3400	320	9	10	19	52		16	42
3500	Ambient	327	345	1330	1616		15	38
3600	320	12	14	31	98		16	38
3700	500	30	31	42	122		16	40
3800	500	25	26	49	151		16	40
3900	320	29	32	81	204		12	40
4000	Ambient	958	1331			1	6	32
4000	Ambient	6	7	48	77		20	45
4100	320	1	1	6	13		16	40
4200	500	7	8	11	15		15	40
4300	500	9	9	11	19		12	42
4400	320	3	9	5	8		12	40
4500	Ambient	3	4	36	77		12	40
4600	320	2	2	5	8		12	38
4700	500	3	4	9	13		12	40
4800	500	5	6	8	22		12	40
4900	320	2	3	8	15		12	38
5000	Ambient	12	12	63	105		14	40
Averages ->		34	42	50	76		16.1	41.8
Maximums ->		958	1331	1330	1616		70.0	80.0

Packing Retorque Notes:

	Static Leakage PPMv	Before Adjustment				After Adjustment		
		Nut Torque		Opening	Closing	Nut Torque		Gland
		Top	Bottom	Torque	Torque	Top	Bottom	Height
0	3	16	18	6	32	18	18	0.446
1	1310	12	10	10	35	18	18	0.42
2								

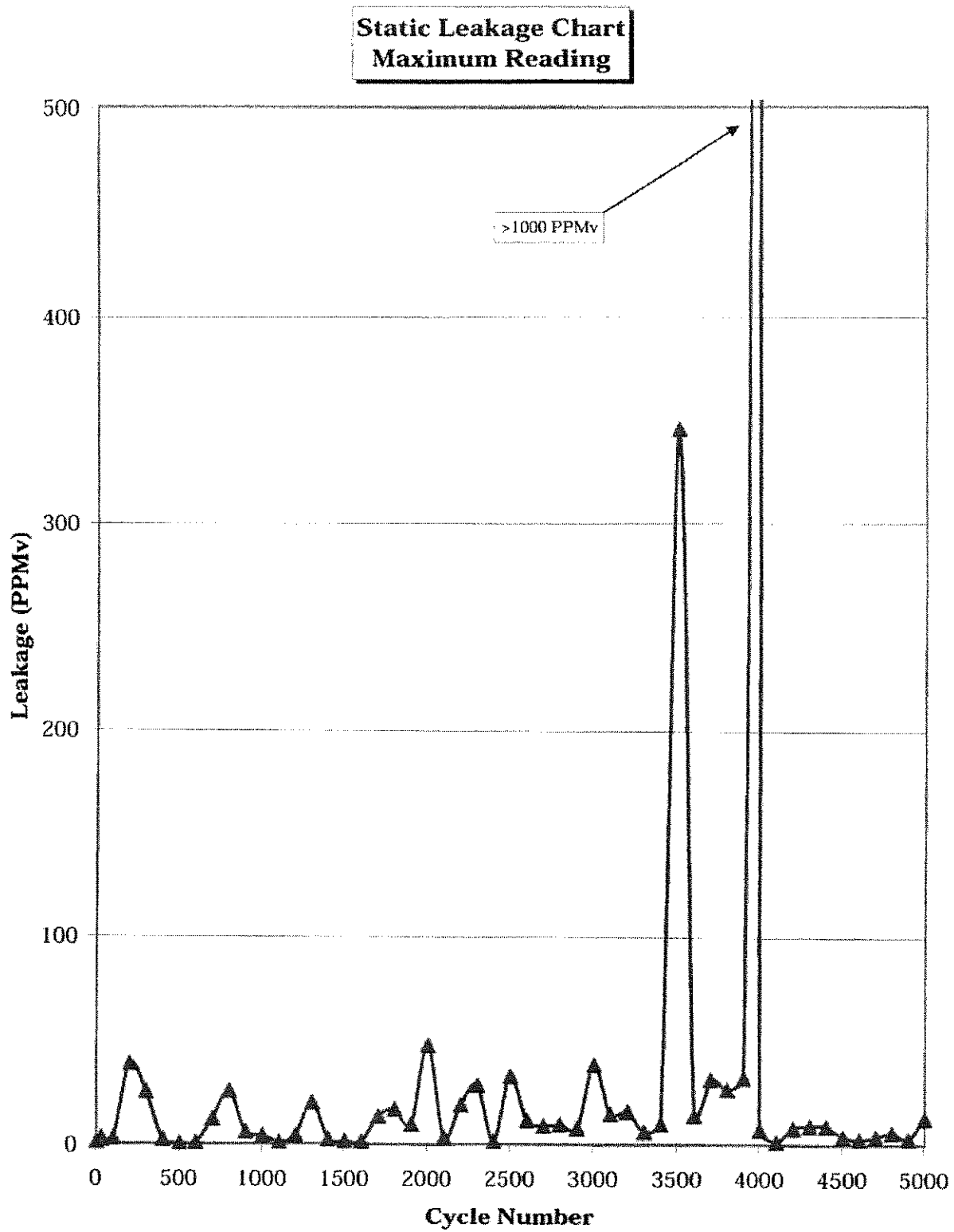
Bonnet Gasket Leakage at Start: (PPMv)	0	Avg.	0	Max.
Bonnet Gasket Leakage at End of Test: (PPMv)	0	Avg.	0	Max.
Packing Nut Torque at End of Test: (ft-lb)	15	<top	15	<bottom

Test Notes:

Leakage levels greater than 1000 PPMv are not calibrated.

Leakages shown as above 1600 PPMv may be many times greater.

Yarmouth Research and Technology



Yarmouth Research and Technology

DIMENSIONAL INFORMATION

Manufacturer's Information

Valve Manufacturer:	Kitz Valve
Valve Product Code:	4 inch 300 SCLS Low Emission
Test Start Date:	22-Jul-03
Is the stem rising rotating, or rising?:	Rising
Serial Number / Date Code:	See photo
Packing - OEM or Repack:	OEM
Packing Description:	Nippon Pillar "Sealever", End Rings No. 6710 Inner Middle Rings No. 6617
Initial Packing Torque or Packing Instructions:	18 ft-lb

Pre-Test Information

Gland stud size:	1/2	inches
Gland Stud Threads per inch:	13	
Gland Height as Received:	0.463	inches
Number of Handwheel Turns to Open:	11.4	rev.
Stem Travel:	4.548	inches
Calculated Pitch of Stem Threads:	0.40	inches/rev
Torque on nuts when valve arrived:	12 / 10	ft-lb
Gland Height After Retorquing:	0.399	inches
Stem Threads, Yoke and Gland Studs Lubed?:	Yes	
Closing Torque with 0 Pressure After Retorquing:	20	ft-lb
Opening Torque with 0 Pressure After Retorquing:	22	ft-lb
Handwheel Outside Radius:	5.0	inches
Maximum Allowable Handwheel Pull:	200	pounds
Calc'd Maximum Allowable Handwheel Torque:	83	ft-lb

Photographs - Before Testing

Valve As Received:	Yes
Bonnet, Stem, Handwheel, Gland:	Yes
Yoke Mechanism:	Yes

Test Parameters

Actuator Speed:	43	RPM
Number of Handwheel Turns During Cycling:	9.5	
Stroke Length:	3.79	inches
Time to Open Valve:	13.3	seconds
Time to Close Valve:	13.3	seconds
Total Time to Complete One Cycle:	75	seconds

Yarmouth Research and Technology

Post Test Measurements

Closing Torque with 0 Pressure:	18	ft-lb
Opening Torque with 0 Pressure:	18	ft-lb
Follower:	0.03	inches
Stem Diameter Above Packing:	1.021	inches
Stem Diameter Center of Packing:	1.021	inches
Stem Circularity (min. Diam):	0.000	inches
Stem Taper (min. Diam):	0.000	inches
Stem Side to Side Play:	See Note	inches
Stem Straightness:	0.0000	inches
Stem Surface Finish:	16	Ra
Follower ID:	1.054	inches
Follower OD:	1.531	inches
Follower Height:	0.743	inches
Stuffing Box Diameter:	1.537	inches
Stuffing Box Depth:	1.621	inches
Stuffing Box Finish (estimated w/comparator):	32	Ra
Bottom Bore Diameter:	1.076	inches

Calculations

Clearance Between Bottom Bore and Stem:	0.055	inches
Clearance Between Follower and Stem:	0.033	inches
Clearance Between Follower and Bore:	0.006	inches
Packing Compression As Received:	unknown	
After Retorque:	unknown	
After Hot Torque:	unknown	
After First Adjustment, (if required):	unknown	
At End of Test:	unknown	

Photographs - After Testing

Bonnet, Stem, Handwheel, Gland Assembly:	Yes
Yoke Mechanism:	Yes
Packing After Removal:	Yes
Stem / Gate Interface:	Yes
Stem After Removal:	Yes
Yoke Components After Disassembly:	Yes

Notes:

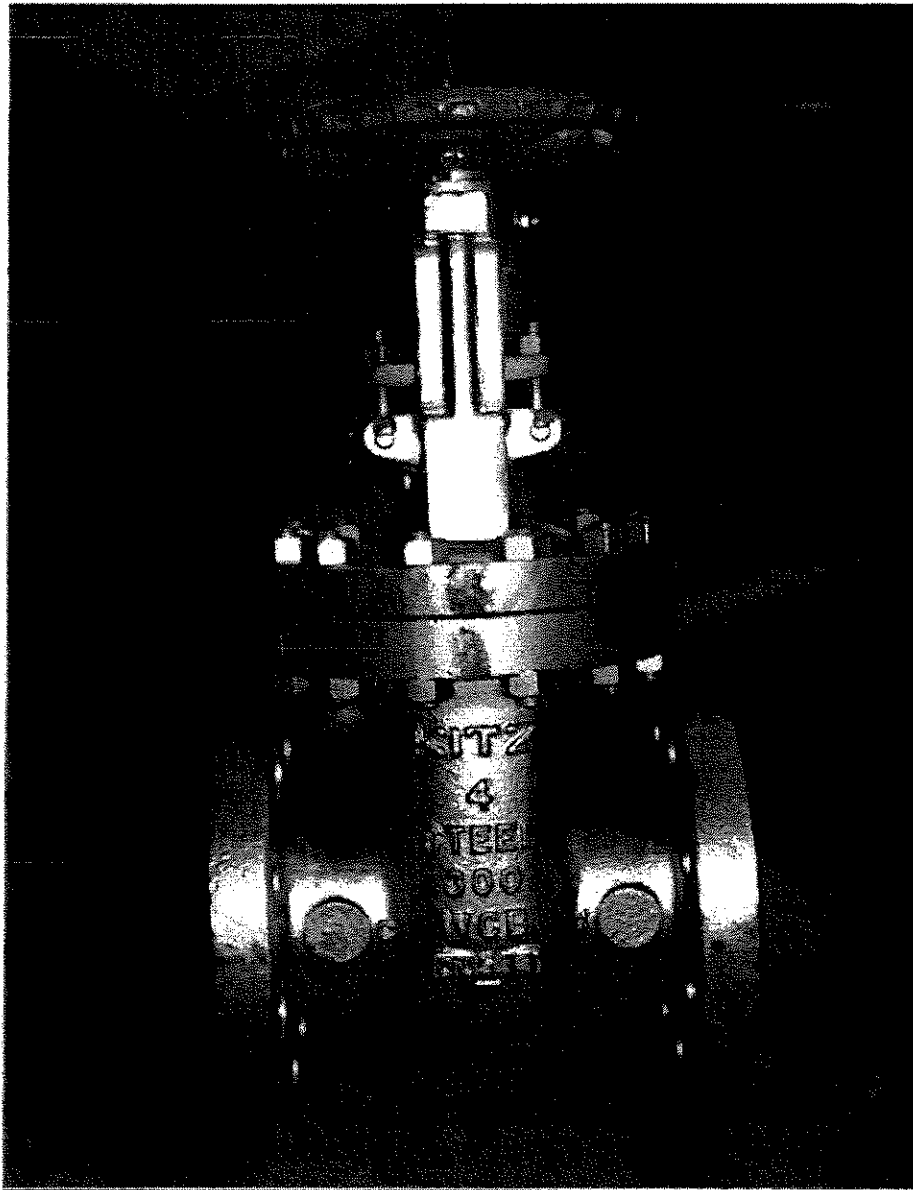
Stem Side-to-Side measurement could not be made because the yoke sleeve was not able to be removed from bonnet.

PROJECT NOTES and PHOTOGRAPHS

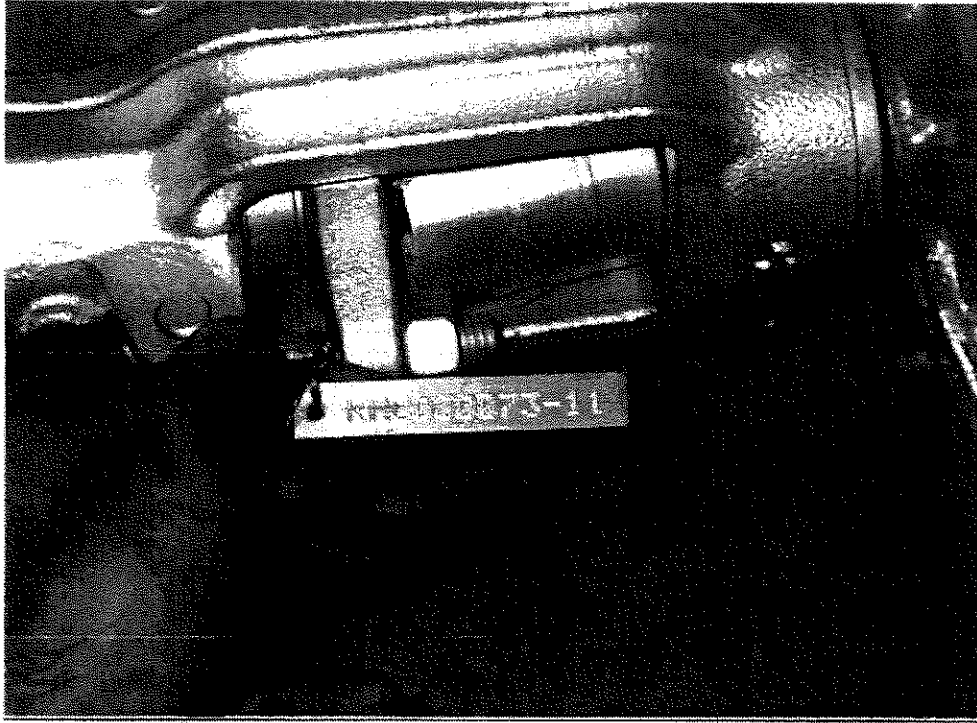
Packing Information

OEM packing used without change.

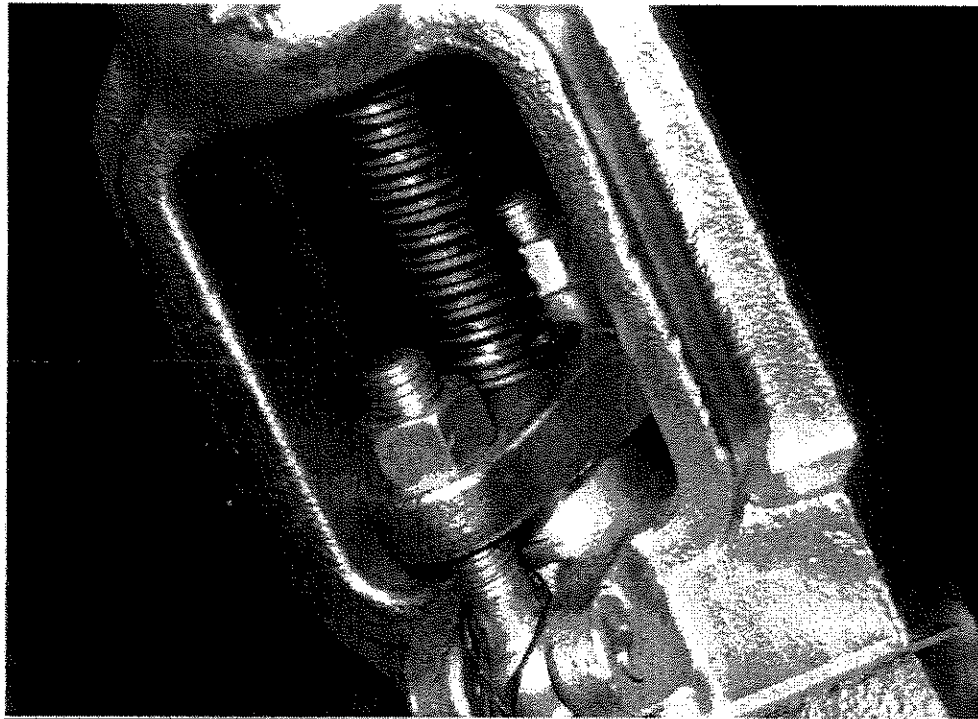
General Valve Notes

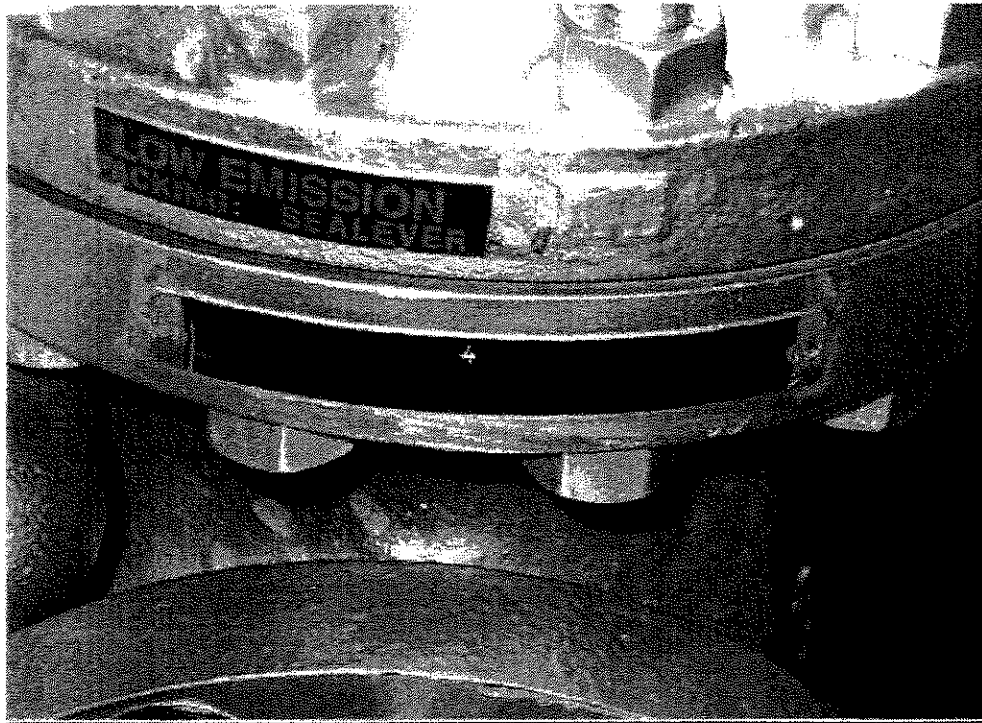


Valve as Received



The stem threads were protected during shipping with a cardboard sleeve.
Cardboard sleeve was removed prior to testing.

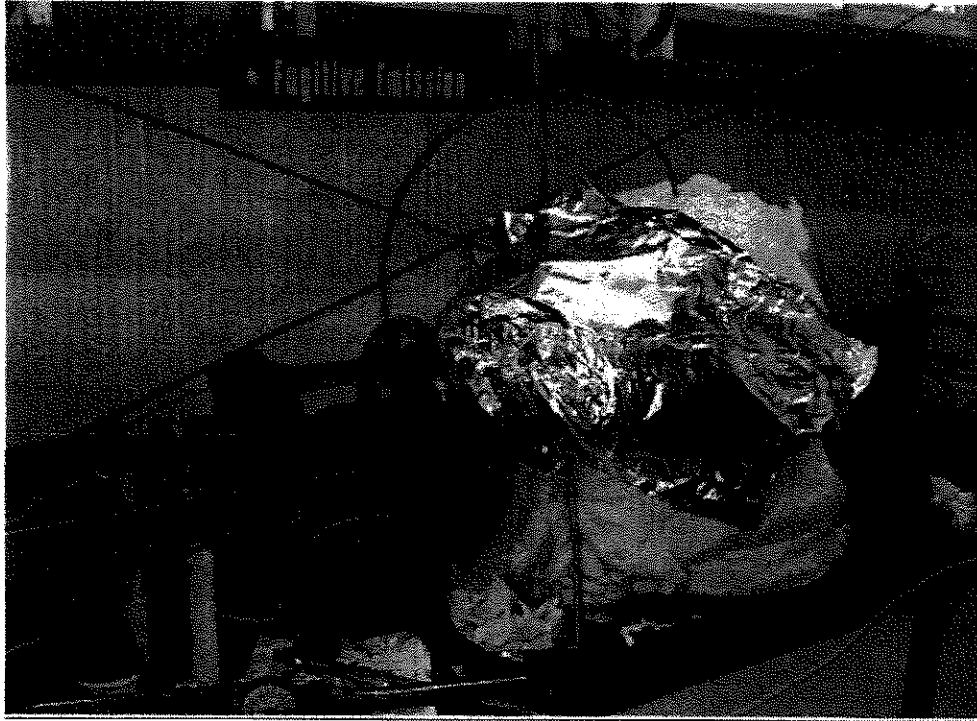




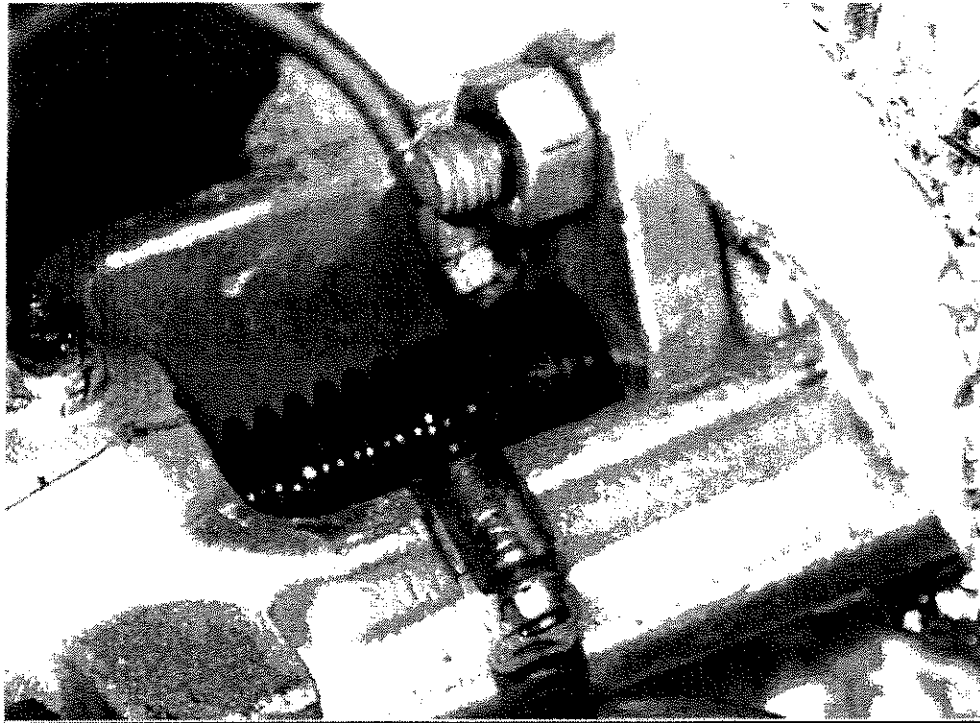
Label Information

Testing Notes

Grease fitting and stem was lubed at start and every 500 cycles. Grease injected freely. A 600 deg. synthetic lubrication was used.

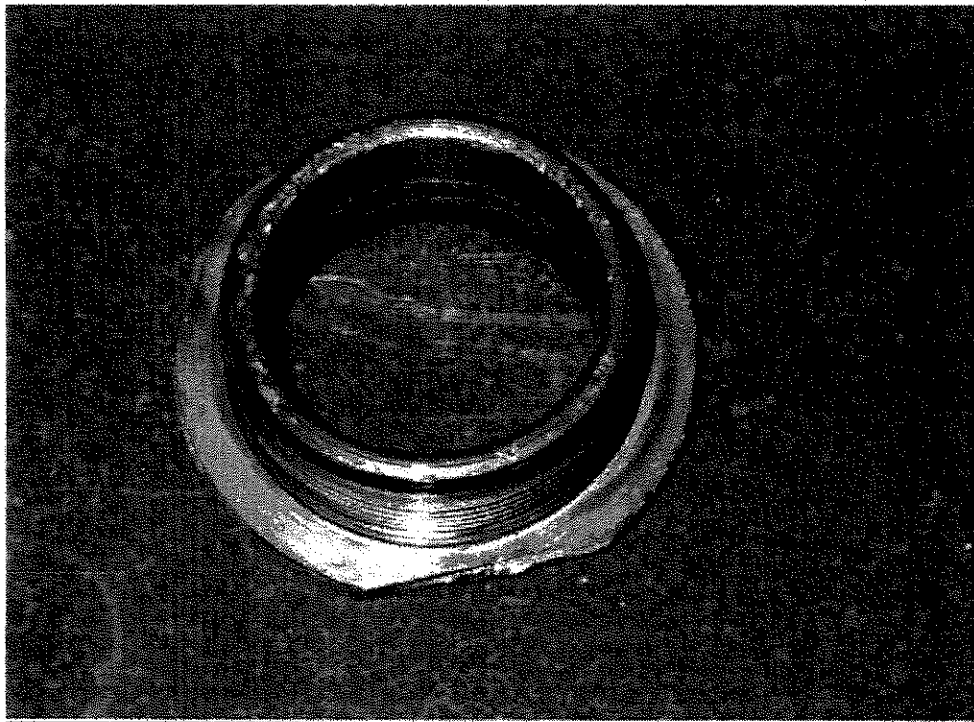


The gearmotor was attached to the spokes of the handwheel. The valve was heated with band heaters and insulated with ceramic insulation. Care was taken to eliminate insulation fibers from the stem area.



A copper tube was fixed to the bonnet so that the leakage readings were made from the same location each time.

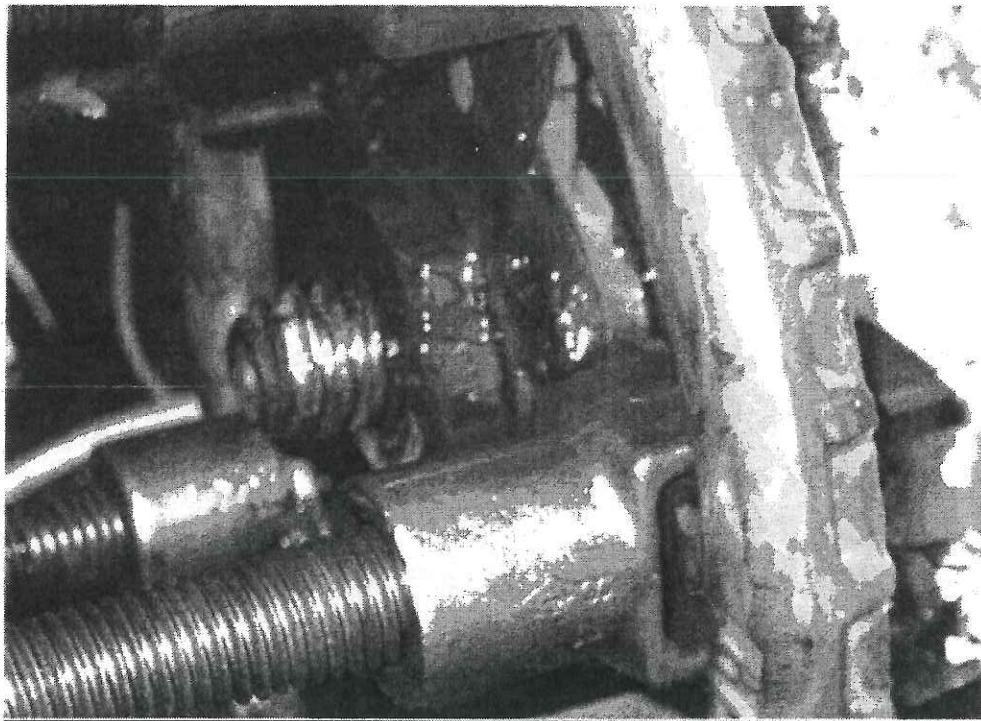
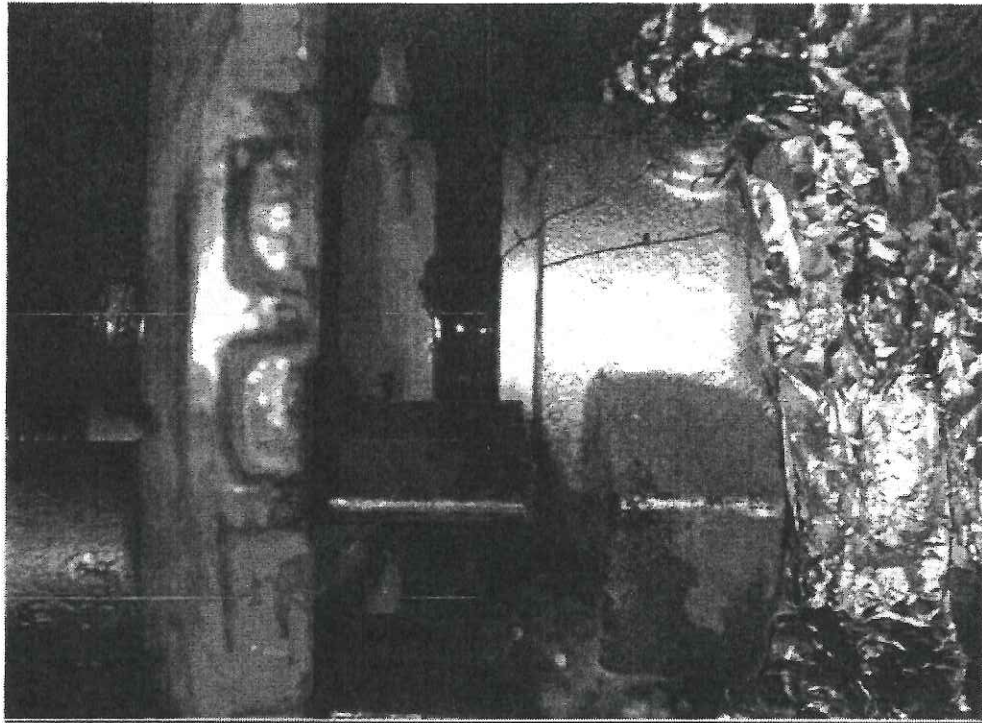
Post Test Observations



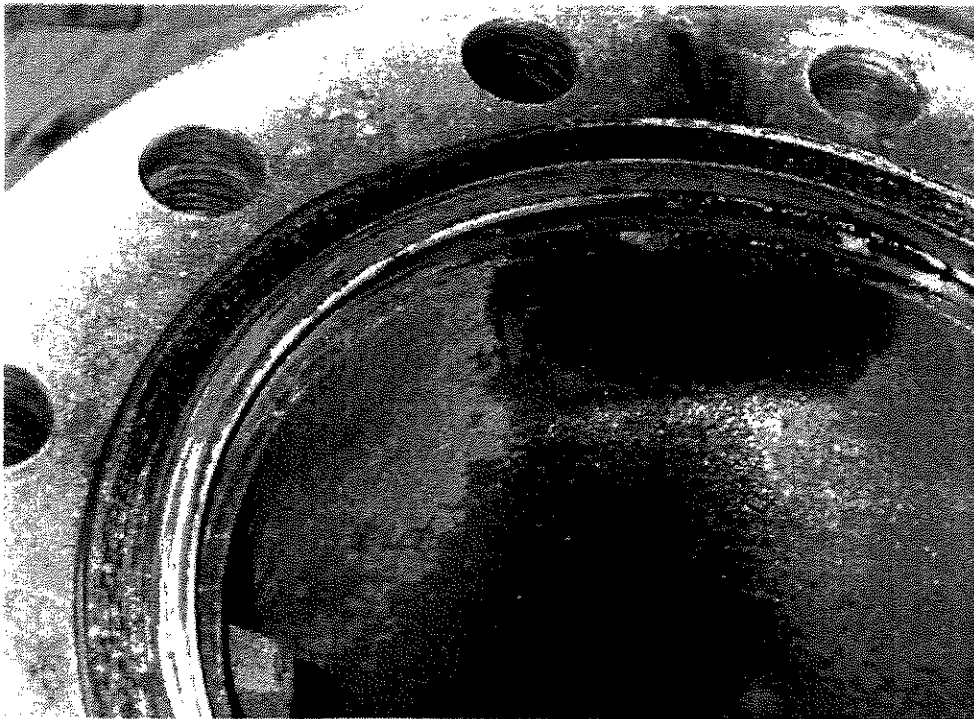
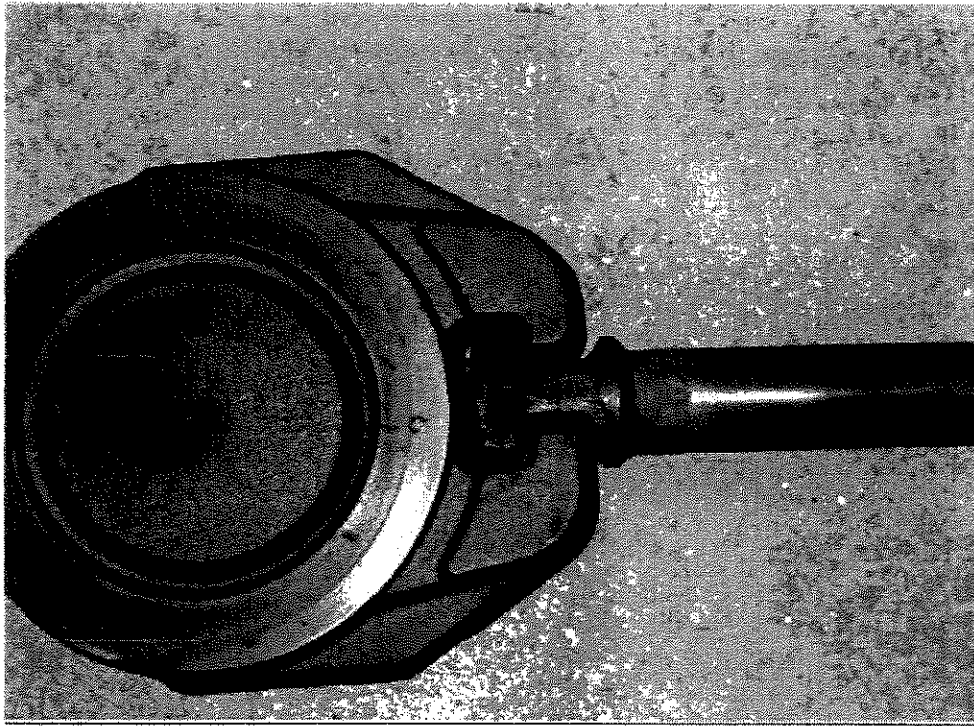
Yoke components were galled after test.



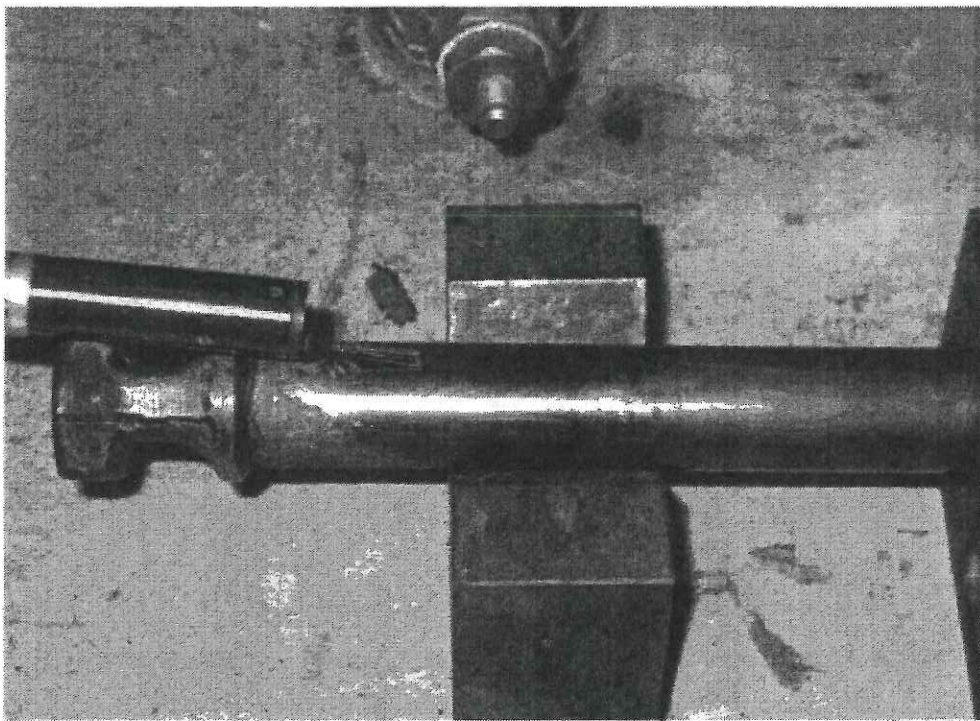
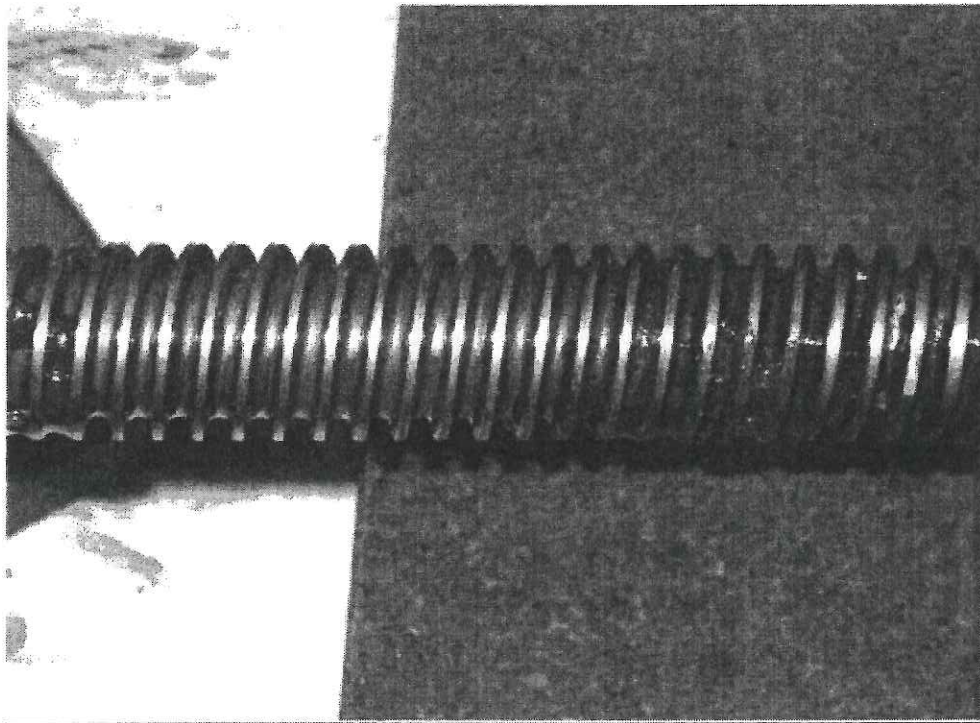
The yoke sleeve could not be removed from the bonnet after the test, due to excessive wear.



The yoke sleeve and nut were well lubricated during the test.
The parts wore considerably but completed the 5000 cycles.



Standard T-slot Gate Connection and Graphite-filled Spiral Wound Seal



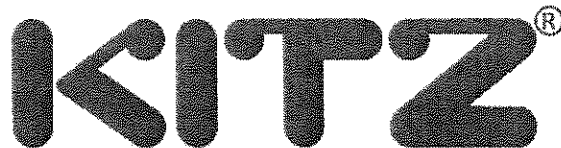
Stem was in good condition after test.



Valve had carbon bushing at the bottom of packing bore.
(Cracks were from removal)



6- ring packing set removed after test.



KITZ CORPORATION OF AMERICA
10750 CORPORATE DRIVE STAFFORD, TX 77477 U.S.A.
PHONE (800) 772-0073 FAX (281) 491-9405

August 1, 2012

KITZ General Term of Warranty for Low Emission Service Valves

Warranty Period:

50ppm Maximum Emission leakage for 5 years from shipment from KITZ factories.

Warranty Conditions:

- Valve installed in service application to which the valve was designed.
- Proper handling and storage of the valve prior to installation, including protection of exposed stems during sand blasting and painting.
- Adequate adjustment/retightening of gland packing sets at startup, according to the KITZ maintenance manual.
- Documented maintenance reports
- Valve stems must be kept free of scratches, scars, or corrosion.
- Follow all other guidelines listed in the KITZ IOM.

Darrell Lueckemeyer
Vice President-Industrial Division

Ladish
No Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Wednesday, February 13, 2013 11:34 AM
To: 'BDiStefano@ladishvalves.com'
Cc: DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA); 'Russ Christian'
Subject: Ladish 2013 Low E Technology Determination
Attachments: DOW Michigan Low-E Valve Questionnaire.docx

Good Morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Unfortunately, we did not receive a completed questionnaire in 2012. We are now working on our 2013 Low Emission Technology determinations according to the Consent Decree and attached is the questionnaire that was previously sent.

Could you please review and complete the questionnaire? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

The Dow Chemical Company
Environmental Delivery Specialist
Office: (989) 638-7774
Cell: (989) 213-7258

2014 ELP Compliance Status Report
Consent Decree No. 1:11-cv-13330-TLL-CEB

**See Corresponding Tab in the Confidential Binder for
Relevant Documentation**

*Larsen and Toubro
Response*

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:12 PM
To: Mariappan M; Jaisingh Jadhav; Ramakrishnan V; 'Rohit Ramachandran'
Cc: Russ Christian; DeVine, Dan (DJ); Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Larsen and Toubro: 2013 Low E Technology
Attachments: Fw: LDAR Low Fugitive Emission Questionnaire; RE: LDAR Low Fugitive Emission Questionnaire; FW: LDAR Low Fugitive Emission Questionnaire with pdfs

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist
Dow Automotive/Dow Pharma
Office: (989) 638-7774
Cell: (989) 213-7258

Metso - Jamesbury
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:12 PM
To: 'wayne.gallupe@jamesbury.com'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Metso Jamesbury: 2013 Low E Technology
Attachments: FW: LDAR Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

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- Or
- (ii) A valve (including its specific packing assembly) that:
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Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: wayne.gallupe@jamesbury.com
Sent: Thursday, February 07, 2013 2:10 PM
To: Smith, Vanessa (A)
Cc: DeVine, Dan (DJ); Dahl, Kathy (KA); Burdick, Matthew (MJ); rchristian@columbiapipe.com
Subject: Re: Metso Jamesbury: 2013 Low E Technology
Attachments: Low-E Valve Questionnaire_Metso_4Jan2012.docx

Hello Vanessa,

The answers provided by Metso in 2012 as indicated in the attachment are still valid for 2013. Thanks for contacting Metso. If you have any questions, feel free to contact me.

Regards,
Wayne Gallupe
Global Key Account Manager
Automation Business Line
Metso Automation Inc.
508-852-0200 x6074 (Office)
508-269-5404 (Mobile)
508-393-0978(Fax)

From: "Smith, Vanessa (A)" <VNowak3@dow.com>
To: "wayne.gallupe@jamesbury.com" <wayne.gallupe@jamesbury.com>,
"DeVine, Dan (DJ)" <devinedj@dow.com>, "rchristian@columbiapipe.com" <rchristian@columbiapipe.com>, "Burdick, Matthew (MJ)" <JBurdick@dow.com>, "Dahl, Kathy (KA)" <KADahl@dow.com>
Date: 02/07/2013 12:12 PM
Subject: Metso Jamesbury: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? **NO** If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace

the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:

- (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.
- Or

(ii) A valve (including its specific packing assembly) that:

- (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
- (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.
Sincerely,

Vanessa Smith

Environmental Delivery Specialist
Dow Automotive/Dow Pharma
Office: (989) 638-7774
Cell: (989) 213-7258

----- Message from Russ Christian <rchristian@columbiapipe.com> on Wed, 4 Jan 2012 20:11:44 +0000 -----

To: "DeVine, Dan (DJ)" <devinedj@dow.com>

cc: "Dayries, Richard [HDS]" <Richard.Dayries@sunbeltsupply.com>, "Tammy Whitmer [HDS]" <tammy.whitmer@sunbeltsupply.com>

Subject: FW: LDAR Low Fugitive Emission Questionnaire

Dan,

Here is Jamesbury's response

Regards,

Russ

From: wayne.gallupe@jamesbury.com [<mailto:wayne.gallupe@jamesbury.com>]

Sent: Wednesday, January 04, 2012 3:00 PM

To: Russ Christian

Subject: Re: LDAR Low Fugitive Emission Questionnaire

Hi Russ,

Metso response attached. Unfortunately, Metso low emission testing follows ISO15848 specifications. There is no reliable way to correlate our test results with Method 21 requirements.

Regards,
Wayne

Wayne Gallupe
Global Key Account Manager
Automation Business Line
Metso Automation Inc.
508-852-0200 x6074 (Office)
508-269-5404 (Mobile)
508-393-0978(Fax)

From: Russ Christian <rchristian@columbiapipe.com>
To: 'Tony Boland' <tony.boland@velan.com>, 'Mark Slayton' <mslayton@bonneyforge.com>, 'Adam Ryan (aryan@coopervalves.com)' <aryan@coopervalves.com>, 'Mark Cottrell' <mcottrell@NewmansValve.com>, 'wayne.gallupe@metso.com' <wayne.gallupe@metso.com>, 'Janet Green' <jgreen@newayvalve.com>, 'Sumit Gupta' <sumitg@larsentoubro.com>, 'jstewart@kennedyind.com' <jstewart@kennedyind.com>, 'brianm@kitz.com' <brianm@kitz.com>, 'Terry Thurn (tthurn@tycovalves.com)' <tthurn@tycovalves.com>, 'Terry Thurn (tthurn@tycovalves.com)' <tthurn@tycovalves.com>, 'BDiStefano@ladishvalves.com' <BDiStefano@ladishvalves.com>, 'mcoles@newdellco.com' <mcoles@newdellco.com>, 'tom.stricklen@c-a-m.com' <tom.stricklen@c-a-m.com>, 'landerschier@forberg.com' <landerschier@forberg.com>, 'rkim@swivalves.com' <rkim@swivalves.com>, 'jyonkman@lockwoodint.com' <jyonkman@lockwoodint.com>, 'clark.kreutzberg@midlandvf.com' <clark.kreutzberg@midlandvf.com>, 'stmiller@flowserve.com' <stmiller@flowserve.com>, 'sales-hoke@circortech.com' <sales-hoke@circortech.com>, 'Roger Shemberger (rscontrols@rscontrols.com)' <rscontrols@rscontrols.com>, 'Rick Anderson (randerson@xomox.com)' <randerson@xomox.com>, 'jhlee@tyvalve.co.kr' <jhlee@tyvalve.co.kr>, 'larry@fluorosealvalves.com' <larry@fluorosealvalves.com>, 'sales@douglas-cherco.com' <sales@douglas-cherco.com>, 'jason.legendre@f-e-t.com' <jason.legendre@f-e-t.com>, 'theo.borgemeester@bacvalves.com' <theo.borgemeester@bacvalves.com>
Cc: 'DeVine, Dan (DJ)' <devinedj@dow.com>, 'Dayries, Richard [HDS]' <Richard.Dayries@sunbeltssupply.com>, 'Tammy Whitmer [HDS]' <tammy.whitmer@sunbeltssupply.com>
Date: 01/04/2012 11:02 AM
Subject: LDAR Low Fugitive Emission Questionnaire

To All,

Dow has requested that each of manufacturers listed on the attached excel spreadsheet fill out and return the following attached questionnaire.

The "Low-E Valve Questionnaire" will act as a record to determine if each manufacturer valves and valve design comply with EPA Method 21 and that the stem leakage is designed to be 100 ppm or less over 5 years of service.

This is all a part of Dow's LDAR program (leak detection and repair). The EPA's Consent Decree went into effect on November 23rd of 2011 for the Michigan Operations site and Dow has a limited time to meet compliance. Please fill the questionnaire to the best of your ability and with as much detail as you can provide.

The attached spreadsheet consist of two tabs that you'll reference to complete the questionnaire. The first tab is sorted by Mfg and includes the Dow CPPS number. The second

tab provides a description of the Dow CPPS valve code.

I would appreciate a response that you have received this message; and please provide an estimated time for delivery of the questionnaire.

We would like a completed questionnaire no later than Friday February 17th, 2012.

Feel free to direct any questions to myself or Dan DeVine.

Regards,

Russell Christian
Regional Manager
Sunbelt / Columbia
Midland, Michigan
Ph 989-496-9260 Ext. 2001
Fx 989-496-9261
Cell 989-600-8297

As we discussed, here is the Low Fugitive Emission Questionnaire that I need to have completed. The Consent Decree went into effect on November 23rd for Michigan Operations.

If you could please assist me in collecting data, it would be greatly appreciated. (Dow has six months to get in compliance). If you can send the answers back to me I will compile the information. If we do not get responses we will need to follow up and I need to document it too.

Hopefully this will also help Sunbelt too, in case other oil or chemical companies ask for this information, if they have to deal with a Consent Decree.

There are 33 valve manufacturers, over 100 valve items codes, in the Dow pipe specifications that require this information. See attached spreadsheet. It can sorted in different ways, but I can help with that if needed. Using the first tab (called mfg) and clicking on the drop down arrows or sorting by manufacturer may be the easiest way to build a list of who all needs to be contacted.

I look forward to working with you on this. Please contact me with any questions or let me know if there is an easier way to do this or how I can help.

Thanks,

Dan DeVine

Piping DAS, Site CPPS Technical Resource,

MIOPs, WVO, ECO, and Business Aligned Sites

Piping Practices Technical Resource Leader

Engineering Solutions

The Dow Chemical Company

1400 Building, Michigan Operations

Midland, MI 48640

phone 989-636-4330

Fax 989-638-3929

email: devinedj@dow.com

Attachment "Low-E Valve Questionnaire.docx" deleted by Wayne Gallupe/WOR/Automation/METSO] [attachment "ELP CPPS
Ive_final_current_RC 2011-12-09.xls" deleted by Wayne Gallupe/WOR/Automation/METSO]

Smith, Vanessa (A)

Neway
No Response

From: Smith, Vanessa (A)
Sent: Wednesday, February 13, 2013 11:34 AM
To: 'jgreen@newayvalve.com'
Cc: Dahl, Kathy (KA); 'Russ Christian'; Burdick, Matthew (MJ); DeVine, Dan (DJ)
Subject: Neway 2013 Low E Technology Determination
Attachments: DOW Michigan Low-E Valve Questionnaire.docx

Good Morning,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Unfortunately, we did not receive a completed questionnaire in 2012. We are now working on our 2013 Low Emission Technology determinations according to the Consent Decree and attached is the questionnaire that was previously sent.

Could you please review and complete the questionnaire? Also, please provide any applicable testing data.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

The Dow Chemical Company
Environmental Delivery Specialist
Office: (989) 638-7774
Cell: (989) 213-7258

Newco/Newmans
Response

Smith, Vanessa (A)

From: Smith, Vanessa (A)
Sent: Thursday, February 07, 2013 12:12 PM
To: 'schow@newmansvalve.com'; 'jpease@NewmansValve.com'
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: Newmans Valve: 2013 Low E Technology
Attachments: FW: LDAR Low Fugitive Emission Questionnaire

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once reviewed, please reply to the questions below:

1. Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.
2. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.
- Or
- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith

Environmental Delivery Specialist

Dow Automotive/Dow Pharma

Office: (989) 638-7774

Cell: (989) 213-7258

Smith, Vanessa (A)

From: Jim Pease [jpease@NewmansValve.com]
Sent: Thursday, February 14, 2013 11:44 AM
To: Smith, Vanessa (A); Shu-Ping Chow
Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)
Subject: RE: Newmans Valve: 2013 Low E Technology

Dear Vanessa,

Please see our response to your questions as noted below:

1. **Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? Yes. The valves provided by Newmans are and continue to be a "Low-E" product.**
2. **Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? No. We have no new or additional products that need to be considered at this time.**

Best Regards

Jim Pease

James Pease

V.P - Engineering

Newmans Valve

3127 Trinity Drive
Harrisburg, Texas, 77477

Phone 281-302-4900 Ext. 4889

Phone 800-231-3505

Cell 281-450-4827

FAX 281-302-4989

From: Smith, Vanessa (A) [mailto:VNowak3@dow.com]

Sent: Thursday, February 07, 2013 11:13 AM

To: Shu-Ping Chow; Jim Pease

Cc: DeVine, Dan (DJ); rchristian@columbiapipe.com; Burdick, Matthew (MJ); Dahl, Kathy (KA)

Subject: Newmans Valve: 2013 Low E Technology

Good Afternoon,

As you may recall, in late 2011 Dow Chemical Michigan Operations entered a Consent Decree requiring Low Emission valves and/or packing to be installed in the Covered Process Units. In early 2012, a questionnaire was sent to you to determine if your products met the specifications of the Consent Decree. Attached are the completed questionnaires and any supporting data that you provided.

Per the Consent Decree, each year we must revalidate the Low Emission valves and/or packing determinations. Please review the attached information that you provided in 2012 upon which we based our original determination. Once viewed, please reply to the questions below:

3. **Are the valves or packing that met the Low-E definition per the Dow Chemical Consent Decree in 2012 last year still Low-E? See definition below.**

4. Do you have any valves or packing that qualify as Low-E per the definitions below since the last time the questionnaire was answered? If yes, please include the testing data.

"Low-Emissions Valve" or "Low-E Valve" shall mean either (i) or (ii) as follows:

- (i) A valve (including its specific packing assembly) for which the manufacturer has issued a written warranty that it will not emit fugitives at greater than 100 ppm, and that, if it does so emit at any time in the first five years, the manufacturer will replace the valve; provided however, that no valve shall qualify as "Low-E" by reason of written warranty unless the valve (including its specific packing assembly) either:
 - (a) first was tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and the results of the testing reasonably support the warranty; or
 - (b) is as an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

Or

- (ii) A valve (including its specific packing assembly) that:
 - (a) Has been tested by the manufacturer or a qualified testing firm pursuant to generally-accepted good engineering practices for testing fugitive emissions and that, during the test, at no time leaked at greater than 500 ppm, and on average, leaked at less than 100 ppm; or
 - (b) Is an Extension of another valve that qualified as "Low-E" per the definition of "Extension" listed below.

NOTE: "Extension" shall mean that: (i) the tested and untested valves were produced by the same manufacturer to the same or essentially equivalent quality requirements; (ii) the characteristics of the valve that affect sealing performance (e.g., type of valve, stem motion, tolerances, surface finishes, loading arrangement, and stem and body seal material, design, and construction) are the same or essentially equivalent as between the tested valve and the untested valve; and (iii) the temperature and pressure ratings of the tested valve are at least as high as the temperature and pressure ratings of the untested valve.

Thank you for your time and assistance with this matter. **All responses must be received by February 28th** in order for us to review and make our 2013 determinations.

Sincerely,

Vanessa Smith
Environmental Delivery Specialist
Dow Automotive/Dow Pharma
Office: (989) 638-7774
Cell: (989) 213-7258

EMISSION/CYCLE TESTER

1-28003

2702

VOLUME THERM
00000000

MAN PRESSURE
449

SHOT COUNTER

600 00

ANALOG METER

02.1

BUREAU VERITAS

REVIEWED

WITNESSED

DATE

12/15/00
K. M. L. K.
12/15/00

EMISSION/CYCLE TESTER

REFORMER

4:00/15.9

MAIN TEMP

115

HOLDING TIMER

000000

MAIN PRESSURE

525

SHOT COUNTER

125 30

AVERAGE FASTER

001.1

POWER ON

UP

DOWN

START

BUREAU VERITAS
EXAMINED
WITNESSED
BY DATE

edixen

1997

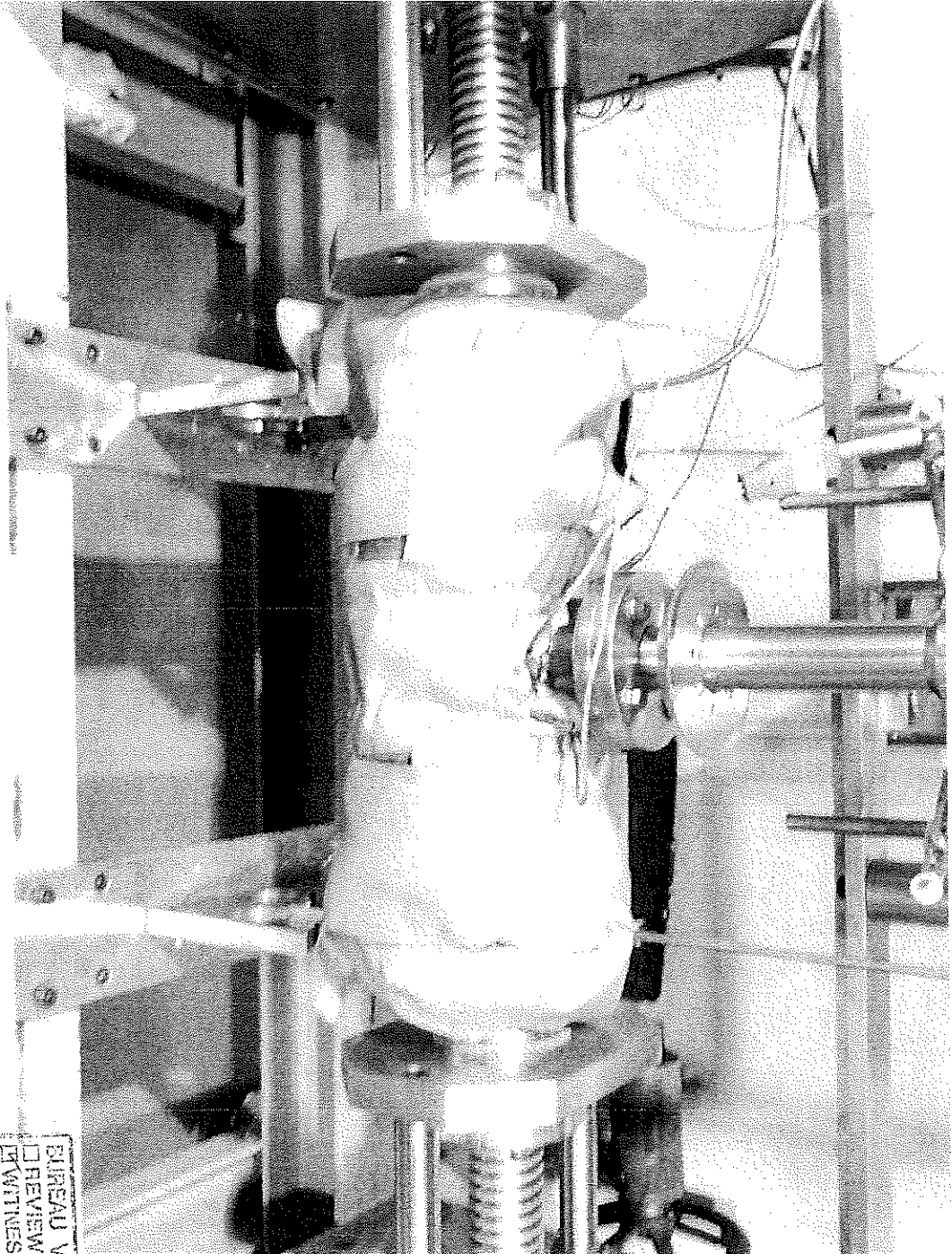


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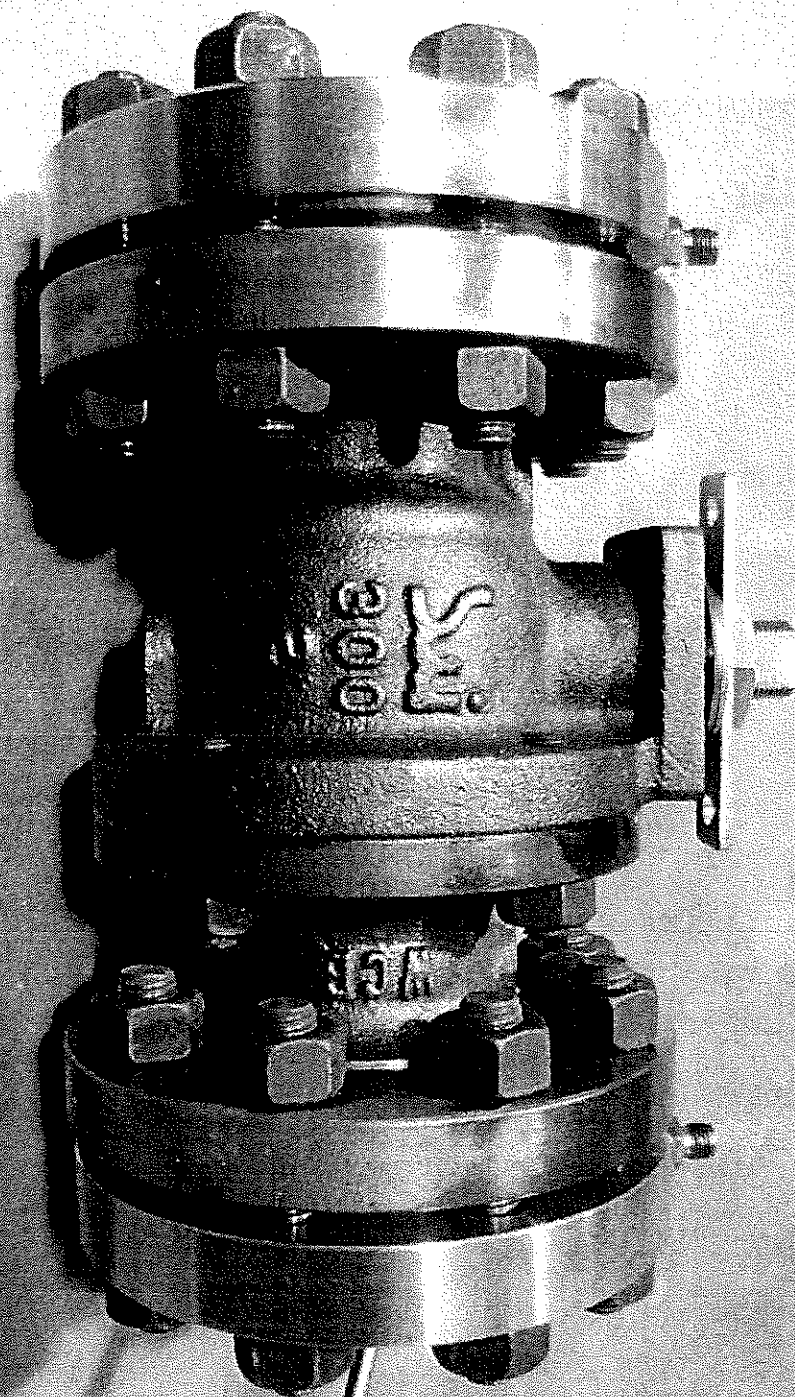
REVIEWED
ATTN: SEC

12/19/2011

THE DANCE



BUREAU VERITAS	
<input type="checkbox"/> REVIEWED	
<input checked="" type="checkbox"/> WITNESSED	
By <i>K. L. M.</i>	
DATE <i>12/06/2011</i>	



BUREAU VERITAS
REVIEWED
WITNESSED
DATE 17/10/11